VIENNA ENVIRONMENTAL REPORT
2006 | 2007
Active and forward looking environmental protection has been a key task for the City of Vienna for many years; we set ourselves challenges on many levels - the successes are already clear for all to see but we still have a lot to do.

Numerous international studies prove our excellent results: Vienna is a city of the highest quality of life. The high share of green areas in the city, the National Park and Green Belt that has surrounded us for over 100 years are unique for a city of million people.

From a global perspective, a key challenge is climate protection. The City of Vienna set the course correctly as early as 1999 with its Climate Protection Programme (KliP). The current 2007 report stated that the aim of KliP - to avoid annual greenhouse gas emissions equivalent to 2.6 million tonnes of CO₂ - had already been reached by half-time. The greatest successes were in extending district heating, building heat insulation and expanding public transport. We are putting all of our energy into continuing the KliP because in spite of the many successes climate protection will be the key subject over the coming years.

Vienna has already achieved a high level in terms of cleanliness. In order to maintain and further expand this, the "Clean City" action was started in 2007 - with a variety of measures and by expanding the services offered by MA 48. This is complemented by the new Vienna Cleaning Law; its regulations have been monitored by "waste-watchers" since February 2008. They investigate cleanliness problems such as illegal collections of bulky waste, dog excrement and "kidnapped" shopping trolleys.

Vienna farmers and wine-makers also contribute to the quality of life in Vienna. Every year around two million litres of wine is produced on 700 hectares of vines in Vienna. The city’s Vienna Cobenzl Vineyard is an exemplary company that celebrated its 100-year anniversary in 2007. The wines from Cobenzl have received multiple awards and are an export hit.

All of the successes and high standards are not a matter of chance but rather the result of consistent work by many committed participants in many different areas. It is up to us all to maintain and expand the high environmental quality for the next generations.

At this point I would like to thank everyone who has to date travelled along the path of active environmental policy with us. And I would also ask you to continue along this path in the future - in order to benefit the environment and the people in our city.

Your environmental councillor

Ulli Sima
Cover photo: "Coloured rain"
by Hans Gach,
Opal (mineral photography)
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The Municipal Department of Environmental Protection - MA 22

The Municipal Department of Environmental Protection - MA 22 was established 35 years ago. Now over 100 highly committed employees work towards even higher environmental and living quality in Vienna.

The most important goal of the Municipal Department of Environmental Protection is to develop and implement precautionary and integrated activities and strategies to improve environmental standards. The focus points in-
Sustainable action and planning must not only come from the local authority, every citizen has something to contribute. Through close cooperation with local organisations and groups the Municipal Department of Environmental Protection is reaching ever more people to share environmental thinking with them. The Local Agenda 21 offers the people of Vienna the opportunity to get involved in the civic participation processes at a local level. MA 22 is involved in strategic discussions in the Local Agenda 21 advisory board. Sustainability workshops for experts were held in 2007 jointly with the Federal Ministry of Agriculture, Forestry, Environment and Water Management and the Chamber of Labours. But sustainability is a subject that is not only moving the City of Vienna. In May 2006 numerous other large cities came together in an international symposium organised by the Municipal Department of Environmental Protection (“Spirit in the City”) to exchange ideas on urban sustainability strategies.

Vienna is also the first Austrian city to calculate its ecological footprint. The ecological footprint is an indicator for how people consume resources. The result: Vienna scored a value of 3.9 hectares, which is excellent compared with other international cities. You can find out more and calculate your personal footprint at http://www.wien.gv.at/umweltschutz/nachhaltigkeit/fussabdruck/index.html.

Everything about our environment

The aim of the Municipal Department of Environmental Protection – MA 22 is to strengthen the environmental awareness of the people of Vienna and to win them over as partners for environmental protection. The key instruments for this include events, activities and environmental education measures.

In addition, you can order around 60 free folders and brochures on the most important subjects by phone (folder hotline 01/4000-73420) or over the Internet. At www.umweltschutz.wien.at you will find news about current environmental projects and get more detailed information. You can also use this address to get reports on air quality in Vienna that are updated every hour. THE central telephone contact point for the City of Vienna for all environmental questions and complaints is the Vienna Environmental Hotline (Tel. 01/4000-8022). The service employees - in cooperation with the Municipal Department of Environmental Protection - handle around 10,000 enquiries per year. The wide range covered by our department is reflected in nearly all of the chapters in the Vienna Environmental Report.
"Thanks to our work numerous Vienna nature and rural protection areas have been declared 'Natura 2000' areas and are thus protected by European Law." –

"With the Award we support environmental protection ideas by young scientists and thus promote the exchange between science and administration." – Municipal Department of Environmental Protection – MA 22

"Through information and subsidies the share of solar-thermal systems in Vienna was virtually doubled compared with 2005." – Vienna Environmental Advocates

"We have contributed to making natural textiles a fashionable product that was successfully presented at Austria's first eco-textile trade fair." – "die umweltberatung"

"The share of organic food in Vienna's hospitals has consistently increased in recent years to around one third." – Vienna Hospital Association
Environment law
The environment is always right!

The Environmental Law Section of the Municipal Department of Environmental Protection - MA 22 handles legal issues relating to protection of nature, the Donau-Auen National Park, tree protection, waste management, air quality, chemicals, particularly defrosting chemicals and environmental impact assessment. In addition to cooperating in the creation of Federal and EU law, producing state laws and regulations and other enforcement tasks, the Municipal Department of Environmental Protection - MA 22 - also implements and monitors approval procedures for numerous projects that affect the environment. For example, the following projects are only permitted with the approval of the Municipal Department of Environmental Protection – MA 22: intervention in the protected areas in line with the Vienna Nature Protection and National Park Laws, setting up and modifying waste treatment plants and issuing permits to collect and treat waste. Another task is implementing the investigation and approval procedure in line with the Environmental Compatibility Test Law that handles projects with special environmental effects.

As part of the strategic objectives of the Municipal Department of Environmental Protection – MA 22 the Environment Law Section is also involved in other issues. Here the focus is in particular on implementing preventative, integrated and cooperative environmental protection (“VIP”) such as the Strategic Environmental Audit (SEA) instrument. In order to strengthen environmental awareness the Municipal Department of Environmental Protection - MA 22 is also available to other departments and interested citizens to answer environmental law questions and carry out training and presentations. A few of the most important projects from 2006/2007 are described below.

Examples of legal activity
In September 2006 the Vienna State Parliament passed the Vienna Biosphere Park Law declaring Vienna Wood to be a biosphere park. As a result of its scope, quality and diversity Vienna’s woods are a unique forest in central Europe that is also characterised by a richly structured cultural landscape of fields, meadows and grazing areas. These woods are a space for living, business and recreation for around two million people. Numerous projects have been started with users of this area to enable the sustainable use of these woods and meadows.

In October 2007 the Vienna State Government passed the European Protection Area Regulation declaring the Lainzer Tiergarten nature reserve, Donau-Auen National Park, some of the Liesing Rural Protection Area and the Bisamberg Rural Protection Area to be European Protection Areas (“Natura 2000” areas). The creation of a Europe-wide, ecological network called “Natura 2000” was initiated by the European Union. The European Union member states are obliged to make a contribution to this ecological network and nominate the relevant areas to the European Commission. The areas appointed by Vienna were confirmed as protected areas after the completion of the Europe-wide selection procedure. The aim of the European protected areas is to cost-effectively maintain the status of certain species of animals and plants that are at risk.

In addition, the Environment Law Section prepared a Vienna Cleaning Law. This law aims to counteract the pollution of public areas and green parks in the city of Vienna. The regulations impose an administrative penalty on a wide range of pollution activities in public areas and offers the option of quick and efficient investigation of infringements. The appointment of monitors (“waste-watchers”) by the City of Vienna Council was standardised and the rights and duties of these monitors laid down.

Management plans for the National Park
With the setting up of the Donau-Auen National Park the aim is to ensure the natural cycle of creatures and elements in this area, to protect and promote the characteristic fauna and flora including their habitat and to provide visitors with a experience of nature.

Hunting and fishing is only permitted in the National Park as part of management plans. New plans with new regulations were set up for 2006 to 2008.

Examples of enforcement activity
In 2006 the Municipal Department of Environmental Protection – MA 22 positively
completed the Environmental impact assessment Test (UVP) for changes to the Simmering Power Plant ("Repowering KW Simmering"). In 2006 and 2007 MA 22 presented more than 10 drafts to the Vienna State Government for detailed approval notifications to extend the U2 underground line from Schottenring to Aspern, which was then also passed.

In 2007 the first partial acceptance procedures for the U2 extension in line with environmental impact assessment act 2000 were carried out. Furthermore in the period 2006/2007 several declaratory procedures were carried out in line with environmental impact assessment act 2000 that affected such matters as roads and park-and-ride facilities. In 2006 and 2007 proceedings were launched in numerous cases of illegal intervention in nature. In these cases the originators were requested initially to remove the illegal interventions; in a total of 11 cases notices to restore the original status were issued in line with the Vienna Nature Protection Law.

Vienna Environmental Advocates

The WUA is in a constant exchange with environmental institutions, research institutions and organisations that are involved in nature and environmental protection. In this regard the WUA also initiated the "Vienna Solar Action". In cooperation with the Vienna State Association of Sanitary, Heating and Ventilation Technicians, the Austria Solar Association, Arsenal Research and Wien Energie, WUA organised solar info evenings and presented a special range of solar-heating-systems available at local plumbers to interested Viennese citizens. Through this and other measures undertaken by the "Sun for Vienna" solar initiative 289 subsidised solar-heating-systems were installed in 2006 - this represents an 89% increase over 2005. In 2007 approvals were given for 331 subsidy applications.

In its function as holding responsibility for nuclear safety in Vienna, the WUA provides comprehensive knowledge on energy efficiency, renewable energy and building renovations in neighbouring states that operate nuclear power plants. With the VIP-Net project the WUA has already completed the third INTERREG IIIA project in Slovakia. The main subject of the City wilderness school project was saving energy and producing alternative energy. In May 2007 the WUA produced a joint statement on the completion plans for the Mochovice 3 and 4 nuclear power plant blocks in Slovakia with those responsible for nuclear protection in the provinces of Burgenland, Lower and Upper Austria. The WUA also represents Vienna’s interests in the cross-border EIA procedure to extend the operating period of the Paks nuclear power plant in Hungary. April 26th 2006 was the 20th anniversary of the Chernobyl reactor disaster. The WUA therefore organised an event entitled "20 years after Chernobyl" with the Austrian Ecology Institute in the Technical Museum. Another focus for the WUA was on nature protection and urban ecology. In this regard an edition of WUA’s own publication "umweltstadt" was produced with the title "Urban development and environment" (can be viewed at www.wua-wien.at). The WUA also runs the "PUMA" environmental management programme across the City administration.

Service and information for citizens

The WUA’s service and information character is particularly strong. Around 2000 queries and complaints on the most varied of environmental issues are handled each year. In order to make this service and important environmental information available to the people the WUA produced a new website. The new homepage describes the areas on which the WUA focuses and its statements and positions. www.wua-wien.at

Council of Experts

The Council of Experts was established with the Environmental Protection Law 1993. Its role is to provide expert advice to the environmental councillor in office and the environmental advocates in order to maintain environmental protection and enforce State laws.

It can submit opinions on important or fundamental environmental protection issues and must make a statement on the Council’s Environmental Report.

The Council of Experts is comprised of six members appointed by the Austrian Academy of Sciences and the head of the Vienna Environmental Protection Department - MA 22. The members of the Council act as volunteers.
Environmental policy is increasingly developing into a concern subject that crosses all political lines and aims to achieve sustainable development. Since signing the "Charter of European Cities and Towns Towards Sustainability" (Aalborg Charter) in 1996 Vienna has made continuous steps in this direction.

Coordinating sustainability

In Vienna the sustainability coordination body has been located in the Environmental Protection - MA 22 since 1999. The key activities in 2006 and 2007 were carrying out a study on how the Vienna strategic plan could be developed into a regional sustainability strategy and how to include environmental and sustainability issues in regional EU subsidy programmes. In addition, all ZIT project proposals were assessed for their environmental relevance.

In order to support the exchange of experience and information within Austria an annual dialog event is carried out and the "Sustainability Journal" published as part of the "Sustainable Austria Action Network", which is supported by the Federal and State authorities.

Local Agenda 21

Since 1998 the LA 21 model gives citizens from currently 9 districts the opportunity to be involved in designing their living environment. The model was developed intensively in 2007 in order to achieve long-term anchoring at a district and city level.

Vienna's path towards a sustainable city

Environmental policy is increasingly developing into a concern subject that crosses all political lines and aims to achieve sustainable development. Since signing the "Charter of European Cities and Towns Towards Sustainability" (Aalborg Charter) in 1996 Vienna has made continuous steps in this direction.

In 2006/2007 the Council made statements on such issues as the following:

- Vienna Outer Ring Motorway Schwechat – Süssenbrunn – Investigation measures for the Donau-Auen National Park
- Irrelevance thresholds - recommendations for use in the approval proceedings

The Provincial Governors conference and the Council of Ministers decided in 2007 that the "Austrian Strategy for Sustainable Development" that had existed as a federal strategy since 2002 should be developed into a sustainability strategy carried jointly by federal and state authorities. In 2008 the sustainability coordinators will present a draft strategy and a first joint working programme.

“Environment in Vienna: Vision, Guidelines, Objectives”

The Municipal Department of Environmental Protection – MA 22 has proven from the example of this working paper how sectoral policy (in this case for the environment) can meet the requirements of an integrated perspective as demanded by the idea of sustainable development. In December 2007 the Municipal Council took note of it approvingly.

"Environment in Vienna: Vision, Guidelines, Objectives"

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www.umweltschutz.wien.at

The 13th "Sustainable Austria" round table on the subject of “Sustainable Development: Stumbling Blocks and Springboards. 20 Years after the Brundtland Report, What Remains?” took place in June 2007 at Schlaining Castle.
Scientific Award by the Municipal Environmental Protection Department

Since 1997 the MA awards each year a scientific prize to young scientists for their environmental protection ideas. The ceremony is attended by special guests of honor, who congratulate. These included in 2006 multiple Olympic champion and motivational expert Dr. Toni Innauer and in 2007 meteorologist and climate change expert Prof. Helga Kromp-Kolb. The work submitted were bachelor’s or master’s dissertations relating to environmental protection in Vienna. The winners were selected by a jury of experts from the Municipal Department of Environmental Protection. Vienna Waterworks (MA 31) took part in the initiative for the first time in 2007 and awarded a "special water prize".

Environmental advice

die "umweltberatung" Vienna

20 experts from the eco-counselling organisation give answers on ecological lifestyle issues and implement numerous environmental projects. "die umweltberatung" Vienna is supported financially by the Municipal Department of Environmental Protection – MA 22.

In 2006 and 2007 the organisation took part in the "strategic environmental audit for the Vienna waste management concept" process. This produced activities for the next five years.

The successful projects included "Eco-textiles - from a niche to a fashion product". It resulted in the foundation of a network of natural textile manufacturers and traders supported by "die umweltberatung". The first pleasing result of this cooperation was "ecotrend 07" - the first eco-textile trade fair in Austria.

Demand for the Vienna Repair Network was extremely high. "die umweltberatung" won the Hubertus Award in November 2007 for this project. Other projects were dedicated for example to greener roofs and garden birds. Other new items include the "Scents that get under the skin" folder with tips on handling fragrances in cosmetics and cleaners.
"Environmental protection is health protection" - in line with this motto the forward-looking observance of ecological principles is the focus of the Vienna Hospital Association. Implementing important environmental protection projects and maintaining the environmental standards already anchored in everyday routines aims to protect resources, maintain our living space and promote human health and well-being. To this end the environmental objectives laid down in the Vienna Hospital Association environmental development plan were further implemented whereby the focus was on the step-by-step introduction of environmental management systems (EMS) in all organisations; this started in 2006. The first four modules - environmental policy, environmental programme, organisational structure and environmental auditing - have already been implemented successfully.

Environmental standards already implemented into established routines include the use of organic food, replacing mineral water with tap water, the use of ecological detergents and cleaners, avoiding waste and the use of the principles of ecological construction.

The share of organic food has increased over recent years continuously to one third; the consumption of mineral water was reduced in 2007 by a half compared with 2003. The Vienna Hospital Association has only used ecological detergents and cleaners since 1999. For the new tender process planned for 2008 the ÖkoKauf criteria, which have been compulsory across Vienna since January 2007, will be used. By reducing the quantity of waste and switching to more cost-effective categories, around 180 tonnes of waste was reduced from 2005 to 2006 and this saved around €30,000 in additional costs. Common energy standards and ecological criteria have been defined for future new buildings, extensions and renovations in the Vienna Hospital Association and these are laid down in the "Ecological and energy-efficient strategies for Vienna Hospital Association buildings" position paper.

Environmental protection projects are carried out to continuously improve the environmental services. Waste avoidance projects aim to reduce waste both in quantitative and qualitative terms. When testing selected multi-use products it was proven that by replacing single-use with multi-use products it was possible to reduce waste on the one hand and achieve economic savings on the other. Qualitative waste avoidance projects concentrate on avoiding PVC and testing the practicality of products made from (mainly) renewable raw materials for certain areas in hospitals. Checking microfibre cloths for suitability and handling showed that when used properly 80% of general purpose cleaners and 100% of glass cleaners could be saved. At the same time the use of single-use cloths fell.

In order to inform the public about the Vienna Hospital Association’s environmental work the Environmental Protection Department’s website was redesigned (http://www.wienkav.at/kav/umweltschutz/). On 18th September the first Environment Information Day took place throughout the Vienna Hospital Association; environmental teams informed interested visitors about the Vienna Hospital Association’s environmental activities in personal meetings in the hospitals and geriatric centres using folders, posters and brochures.

Trees provide shade

This pavilion was renovated using ecological criteria.
"In the master plan for the Aspern airfield, a balanced mixture of private, semi-public and public open spaces were created for residents and visitors." – MA 18 Municipal Department for Urban Development and Planning

"Through consistent zoning and with the cooperation of the Municipal Department for Environmental Protection – MA 22, we achieved allocation of the 17-hectare Steinhofgründe region as part of the protected green belt around the city." – MA 21a Municipal Department for District Planning and Land Use Central West

"Many gaps were closed in Vienna's bike path network in 2006 and 2007. It is now possible to ride the Gürtel from Heiligenstadt to the Südbahnhof." – MA 28 Municipal Department for Road Management and Construction

"Our award-winning bridge over the river Wien in district 13 will significantly expand the foot and bike path network." – MA 29 Municipal Department for Bridge Construction and Foundation Engineering

"In the years 2006 and 2007, Vienna's canal network grew by almost 25 kilometres, achieving a level of integration approaching 99 percent." – MA 30 Municipal Department for Vienna Waste Water Management
Vienna - Green Space Planning

Landscape Planning in the Northeast Region – Connecting Lobau – Aspern Airfield – Marchfeld

Sufficient green space and open areas are a major factor in the quality of life in a given part of a city. For this reason, great importance was placed on a high-quality network of green and open spaces in creating the master plan for the Aspern airfield. A balanced mixture of private, semi-public and public open spaces are intended to help residents and visitors feel comfortable. In addition to the diverse green areas, such as the large central park with lake, the smaller Grätzelparks and the park-like connections, there will also be green-lined roads, a number of squares and multiple sports grounds. A portion of the roads will even be half dedicated to non-motorised traffic and become public spaces of especially high quality.

Building plots of the first order were planted with sunflowers and maize in the spring, and the first trees of the new city quarter will be planted in 2008. At the same time, an additional crossing option for pedestrians and cyclists is being built north of the General Motors plant.

In connection with the expected developments, landscape plans for the realisation of stable green space structures were created by MA 18 in cooperation with MA 21B, MA 22 and MA 49. On one hand, this involves linking the new city quarter with the residential areas that border it to the east and west. The higher-order north-south green linkages between the individual regions should form a new meeting space. On the other hand, high-quality connections should be created with the bordering green areas, such as Lobau and the Donau-Auen National Park.

Urban Planning and Development


Based on current population forecasts (stronger growth than previously expected), the potential residential area available for future settlement developments must be evaluated. This process was begun in 2007 with the development of an instrument – the “building land check” – which is intended to supply recommendations for further settlement development in the interests of a “compact city” and in accordance with a modern understanding of open space and infrastructure availability. The building land check examines future settlement developments, for which ecological aspects represent particularly important considerations, to determine what potential areas are available and what areas are required, all broken down by the location within the city and types of utilisation (residential, office and production, i.e. commercial and industrial areas for enterprises). The current and future development of demand for building land as well as the potential for utilising possible building land is determined and evaluated with regard to infrastructure costs in annual evaluations that are subject to constant refinement.

The “Vienna building land check” should help the goals of the 2005 Viennese Urban Development Plan, which are particularly directed toward sustainable development, live up to the requirements of the coming years and decades despite the increasingly heavy demands placed on the use of space. For this reason, the “building land check” is highly focused on settlement developments in parts of Vienna that are already or will in future be very well connected via public transport.

A GIS project developed for this purpose should contribute to a more detailed understanding of the spatial structure and density distribution of Vienna. The existing building situation within the city is monitored and analysed from a perspective of urban structure in order to derive a strategic basis for planning and goal setting.

One specific goal is to establish the current building density of Vienna and compare this to accessibility via public transport.
Regional Development at the City Environs Level

In establishing the City Environs Management (SUM), the city of Vienna is placing an emphasis on increased cooperation with the surrounding Lower Austrian communities for better utilisation of the development potentials of the city region. This involves issues of joint strategic regional development with a focus on sustainability as well as concrete joint projects that also take ecological aspects into consideration. SUM also represents a key instrument for implementation of environmental goals within the 2005 Viennese Urban Development Plan.

In 2006, the City Environs Management was anchored in the association “Lower Austria / Vienna – Shared Development Spaces” as a joint institution of the provinces of Vienna and Lower Austria. SUM acts according to uniform principles with one manager north of the Danube (SUM North) and one manager south of the Danube (SUM South).

The focus in 2006 and 2007 lay on the following fields of activity:

- Initiation and support for town and/or inter-provincial projects
- Organisation of coordination platforms, city environs conferences and city environs forums.
- Close cooperation with local planning agencies, organisations and politicians

Mobile in Vienna

The goal of the 2003 Traffic Master Plan, which is currently being re-evaluated, is further improvement of the modal split in favour of the environment-friendly transport types such as foot traffic, cycling and public transport. A number of measures should contribute to this goal.

Mobility Behaviour of the Employees at the Municipal Office on Rathausstraße

A mobility survey was performed at the municipal office building Rathausstraße 14 –16, which is also home to the Urban Planning department, in order to determine the mobility behaviour of the staff. The survey showed that more than three quarters of the staff take environmental forms of transportation on their way to work. It is also significant that the share of employees who take cars to work has been reduced by 4%. MA 18 is drafting a mobility concept for the municipal office based on this survey.

Infrastructure Projects

Tram Line 26

The Transportation Master Plan includes the expansion of several tram routes in the 21st and 22nd district (lines 16/25, 26 and 27) to establish direct connections between district centres and optimal links to the new U-Bahn lines. In 2007, MA 18 was able to conclude the comprehensive project for line 26 and hand it over to Vienna public transportation (Wiener Linien). The new stretch should run from Kargran through the Stadlau business park to Hausfeld and, after approval of the A23, on to the airfield. This also creates the opportunity to make the Kargran Anger more attractive to pedestrians and cyclists.

U2 Northern Extension to the Airfield

One high-priority project of the 4th U-Bahn expansion phase is the extension of the U2 line from Aspernstraße to the Aspern airfield. MA 18 was able to conclude the general project in 2007 and hand it over to Vienna public transportation (Wiener Linien). The route as well as the number and locations of stations in the airfield were determined in close cooperation with the urban planning, which took place in parallel. The expansion of the parallel transportation routes in the form of the Marchegg branch of the eastern railway and the A23 extension is planned for the same period as the U2 north.

Vienna Main Station

In addition to making long-distance travel more comfortable, the new Main Station (Hauptbahnhof) will also benefit regional transportation customers. In the future, transfers will take place within a large regional and long-distance hub. The concept calls for two traffic-calmed forecourts for the station with zones for short-term parkers, cyclists and taxis. The station’s connection to the public transport network takes the form of the U1 and the main S-Bahn route of the new city quarter as well as the planned southward expansion of the U2. The extension of the D line will create another direct connection to the city centre. The bicycle path network is being massively expanded, and this will be the first Vienna train station to have a bike garage.

S45 Interval Reduction

Due to increasing passenger numbers on the S45, MA 18 studied the feasibility of reducing the intervals on this line. The positive result then formed the basis for negotiations with ÖBB. In 2007, the intervals were reduced from 15 minutes to 10 during the peak travel times.

U2 extension from Aspernstraße to the Aspern airfield
ITS Vienna Region
The Transportation Master Plan also called for establishing comprehensive transportation and mobility management as well as better utilisation of the infrastructure capacities. The project ITS Vienna Region (Intelligent Transport Systems) – an initiative of the provinces of Vienna, Lower Austria and Burgenland that came out of Vienna Traffic Management (VEMA) – is one of the leading ITS regional projects in Europe.

Before/After Study of the Extension of the A22, Nordbrücke Section
Traffic in the centre of Floridsdorf was relieved by the new road connections, and the main traffic flows were disentangled. As part of these measures, the current four lanes of Leopoldauer Straße are being reduced to one lane in each direction. The space opened up in this way will be available for bike/multi-use lanes, wider pavements and capes at tram and bus stops. The reduction of Leopoldauer Straße should take place in 2008.

Parking Space Policy
Parking space management is an intelligent instrument for distributing the tight parking space resources and for reduction of automobile traffic. It has been possible to reduce automobile traffic in densely developed districts and improve the parking space situation for residents through parking space management and the Vienna garage programme. In 2007, the management time in the inner districts was extended to 10:00 pm – Monday to Friday (business days) – and the parking fee was raised for the first time in 21 years.

Using the Vienna Traffic Model
With its elaborate traffic generation module VISEM, the Vienna Traffic Model of MA 18 is based on activity models with realistic traffic sources using data from household surveys by KONTIV. It was also used in 2006/07 for environmental protection projects (emissions inventory, area sound maps, ...).

Walking and Quality of Life
MA 18 placed a focus on pedestrian traffic in its survey “Walking in the city on the Danube: What makes walking attractive and what makes it difficult”. In general, travel on foot within the area was given a positive evaluation. The set of measures to promote walking in the 2003 Transportation Master Plan was highlighted by the survey (wide pavements, traffic safety, light switching times, etc.).
Rethinking Vienna’s Main Bicycle Path Network

A number of additional bicycle facilities were implemented in recent years. Due to changes to the general situation, it now makes sense to re-evaluate the main bicycle network. To this end, the figures for the entire network were recalculated and the network sections were rated along with prioritisation for further expansion. This process also included determination of the “basic routes” that should be assigned particular importance.

Marketing and Publications

In addition to various PR activities, MA 18 has commissioned a concept dealing with future forms of marketing, in particular the broad-based effectiveness of marketing techniques, target group orientation, etc. The results of the bicycle traffic studies were published in a newsletter as well as in a workshop report. An exhibit that was displayed at numerous events and around the districts provided information about the various activities of the city in the area of bicycle traffic. The popular bicycle map was also reissued.

Raising Awareness of “Intelligent Mobility”

In addition to the ongoing marketing measures for bicycle traffic, the exhibit “60 Minutes Underway in Vienna – Present and Future of Mobility” could be viewed from January to April 2008. This exhibit showed the many facilities for mobility in Vienna and conveyed the way current transportation planning issues are addressed. The exhibit was conceived for a broad audience, including children and young people in particular, and should encourage people to think about mobility behaviour and motivate them to switch to more environmentally friendly types of transportation. The exhibit was also accompanied by a side programme of lectures and discussion panels. [www.wien.gv.at/stadtentwicklung/ausstellungen/2008/mobilitaet/](http://www.wien.gv.at/stadtentwicklung/ausstellungen/2008/mobilitaet/)

“Aspangründe” Structural Plan

An urban planning competition was held in 2005 for the Aspangründe that built upon the structural plan “Aspangründe – Eurogate”. The winner of the competition was architect A. Wimmer. His urban development concept envisages a generous network of green areas and open spaces and also includes the steps of the Arsenal terrace in the design plan. The results of the competition were implemented in the form of zoning and development plans. In accordance with the intent of environmentally friendly planning, comprehensive conditions were defined for private as well as public green areas and open spaces. The green area and open space concept taking into account the needs of both genders served
for evaluation of the submitted projects in the developer competition. The study “Framework for Green Area and Open Space Planning in Public Spaces” was developed on a participatory basis (local Agenda 21) for the design of the central green areas by MA 42.

**Target Area West Gürtel**

The city brought the project “Target Area Gürtel” to completion in 2007 in continuation of the EU programme “URBAN Wien-Gürtel Plus”. With broad citizen participation, the programme placed a particular focus on public wishes with regard to noise and safety. The work of the Gürtel Advisory Committee continues to bear fruit: the transportation wishes of the citizens continue to be addressed by the “Target Area Gürtel” office. The idea, which calls for moving the lanes into the middle zone in the area of the Mariahilfer Gürtel near “Maria vom Siege”, should be realised within the framework of the new goal “Regional Competitiveness and Employment” for the EU Structural Funds period 2007–2013. Light projects in the Gürtel middle zone, the creation, expansion and possibly also renovation of park facilities as well as the installation of splash protection and safety measures for pedestrians should be subsidised with EU funds.

**Nordbahnhof, Rudolf Bednar Park**

The roughly 75 ha of land comprising the Nordbahnhof urban development zone consists largely of areas used extensively by Österreichische Bundesbahnen (ÖBB). The 31,000 m² Rudolf Bednar Park, the “green centre” of the future city quarter, should be completed in August 2008 before residents move into the residential buildings planned there. A requirement profile for the design work was developed under the direction of MA 21A, and an international competition was issued by MA 19. The (residential) development as well as the social infrastructure (school and kindergarten) bordering on the park should be completed by the end of 2011.

**Nordwestbahnhof**

Österreichische Bundesbahnen plans to move the freight terminal from the Nordwestbahnhof in Vienna’s 20th district to the Inzersdorf freight terminal as well as Freudenau port. A rough model for the future urban development and utilisation of the Nordwestbahnhof was worked out under the direction of MA 21A. The early integration of environmental considerations in the development planning is an aspect of sustainable urban development and therefore a key component of the model. Requirements were formulated with regard to objects of protection from an urban ecological perspective, and topical articles were written on the following key ecological issues, among others: development structure, green space system, infrastructure, energy, water/soil/climate, air and noise as well as sustainable urban development.

In accordance with the focus issues of the Aalborg charter, general goals were defined for sustainable urban development within the planning area: protection of all life-supporting media, reduction of energy expenditures, avoidance or cyclical formulation of material flows, maintenance and promotion or restoration of natural environments as well as small-scale structuring and rich diversity. The centre of the new city quarter should be open space for use by people — whether as green space for recreation and leisure or as urban space.

**Augarten**

The Augarten – Vienna’s oldest Baroque garden – represents an important local recreational area for residents of the densely developed regions of Leopoldstadt and Brigittenau. The roughly 52 ha grounds fulfil numerous ecological functions, such as with regard to ground-water management, fauna and flora or improvement of the city climate. The Augarten, which enjoys protection as a cultural monument, is also home to various sports facilities and traditional institutions and enterprises with a range of interests. Future dynamic developments in the surrounding area (Nordbahnhof urban development zone) will also increase the pressure on Augarten by people seeking recreation. For this reason, the Vienna Municipal Council unanimously passed resolutions for the retention of the current zoning and creation of a utilisation model. Work is currently underway on the creation of this model for the Augarten.

**Target Area Wiental**

A process for creation of a target area programme was initiated for the Wiental in 2007. Key development goals are improving the attractiveness of the outer part of the Wiental, with its pronounced natural character, as a recreational space and point of access to the Vienna Woods and establishing of extensive links between the landscape of the Wiental as a green connecting region and the Vienna Woods green belt around the city. In addition, opportunities to experience the river landscape should be maintained and improved within the city region.
Winegrowing Folder

The folder “Vienna’s Characteristic Wine Culture” was created through the cooperation of many departments and commercial groups. This folder offers an overview of the instruments for securing the valuable winegrowing regions and the significance of winegrowing for Vienna with regard to the city’s image, the cultural landscape and quality of life as well as its role as an economic factor.

Grinzing Development Model Initiative

The Grinzing Development Model Initiative is intended to produce sustainable solutions for Grinzing in order to retain the typical character of the village with its wine taverns and the surrounding vineyards. Citizens, business owners and administrative initiatives should be brought together in planning the future image of Grinzing.

Implementation of the SEA Directive in the Planning Process

On the basis of the revision of the Building Code, Provincial Law Gazette 10/2006 from 14 February 2006, zoning and development plans must be subjected to an environmental assessment in certain cases. A procedural guideline was created by the municipal departments 21A and 21B in cooperation with the Vienna Environmental Ombudsman that is intended to ensure a regulated and well-documented process. The office of the Vienna Environmental Ombudsman is included in the evaluation of environmentally relevant consequences of the plan already during the preliminary draft phase and examines the planning draft once again at the start of the legally regulated process.

Expansion of the Protected Green Belt Region

One of the largest reallocations of the protected green belt region in the western part of Vienna during recent years took place during the course of the redefinition of the zoning and development plan for the grounds of the Otto Wagner Hospital and Steinhofgründe. The redesign of the region as an extension of the Steinhofgründe recreational area with access from the hospital grounds (Steinhofkirche) has now progressed quite far, and a connection with the neighbouring Dehnepark has been established. The large, enclosed Neustift am Walde winegrowing region was also zoned as protected green belt for agricultural use during the course of the zoning process.

Zoning in Settled Areas at Risk to Land Slides

A geotechnical analysis was commissioned in cooperation with MA 29 for definition of various hazard zones and as the basis for rezoning of the Augustinerwald residential area in the 14th district, which is partially at risk to land slides and has been subject to a freeze on construction since 2006. The goal in the subsequent zoning process will be to retain the settled area as far as possible without endangering residents or risking damage to future structures.
Projects of the Future

Shortening Paths – Building Bridges

Joint projects yield creative solutions. This one involves a student competition for a new connection over the river Wien.

The goal of the cooperation between the Austrian Cement Industry Association (VÖZ), the construction industry, the Vienna University of Technology and the city of Vienna is:

• Offering universities attractive supplemental educational opportunities
• Documenting the practical orientation of education at the Vienna University of Technology for the building industry
• Demonstrating to the city of Vienna the ideas of young people for a modern Vienna

A jury comprised of professors from the Vienna University of Technology, the District Councillors of the 13th and 14th districts, representatives of VÖZ and employees of MA 29 evaluated the functionality, load-bearing system, architectonic interaction with the nearby structures and the river, the practical building material selection and the ease of maintenance of the bridge.

The competition “Fleschgasse Footbridge” ended with the award ceremony on November 15th, 2007. Mr. Schicker, Executive City Councillor for Planning, and the Director of MA 29, Senate Councillor Winter, presented the awards in the name of the city of Vienna.

LINK 27 received first prize. This support structure is fixed on both sides. The supporting function is identifiable even to laypersons, which increases acceptance of the structure. The bridge is conceived as an integral structure; in other words, the design is seamless. The footpath and bicycle path area at the Astgasse junction is significantly expanded. A large area is created for pedestrians and cyclists without impeding the motorised traffic. The level pedestrian crossing at Astgasse meets the planning goals of a barrier-free design for the city of Vienna.

The New Landfill Ordinance – Redefining Building Processes

The new Landfill Ordinance entering into effect on March 1st, 2008 marks the end of a year-long discussion process and intensive dialogue between provincial representatives and officials at the BMLFUW. The changes involve not only the handling and treatment of waste materials but also their storage at landfill sites.

What does the Landfill Ordinance have to do with “building”? A great deal since other laws regarding the environment and waste have also been changed and new standards, including at the European level, have been established as binding. In matters ranging from demolition to excavation to tunnel digging, the new Landfill Ordinance regulates sampling procedures and frequency in accordance with the respective “level of danger”. In principle, this is a step toward preventive environmental protection, as is stipulated in the Federal Constitution.

Some changes to building procedures will presumably be required in the coming months. Logistics in the demolition of buildings, excavation of soil and tunnel digging will in future become a separate field. The life cycle of a project will be accompanied by removal concepts for existing buildings, construction site waste management concepts for excavated soil materials and for the building phase as well as a waste management concept for alteration and adaptation work. The
Environmental Unit of the Municipal Department for Bridge Construction and Foundation Engineering (MA 29) can help in analysing risks in foundation engineering as well as in identifying opportunities. This systematic process for implementation of innovative solutions to climate-related problems can represent a true competitive factor.

Activities of the Official Expert in the EIA Process – Mastering Geotechnics and Environmental Technology Ecologically and Economically

Large projects in facility construction, such as the new caloric power plant at 1 Haidequerstraße in Vienna’s 11th district, are subject to an environmental impact assessment (EIA). Great responsibility is placed on the official expert of the city of Vienna. The project of Wien Energie, called “Re-powering KW Simmering” has a planned output of 360 MW and presents exceptional challenges.

The key factors to be addressed by the official expert for geotechnics are:
- Keeping production costs low – particularly during the founding
- Minimising maintenance costs
- Keeping open extensive options for future alteration measures
- Ensuring operating safety – even in extreme cases, such as earthquakes and operating disruptions

Evaluation of the project documents in consideration of the key factors listed above involves careful application of risk management in large projects and an ecological perspective on building methods and construction processes. This perspective is supplemented by modern observation and analysis methods (vibration measurements, dynamic load plate, DPVK, ...) in order to implement measures in good time. Analysis of measurement results set into relation with the respective load classes and the predicted values of the simulation models demands constant study of the individual building and construction phases. It can be seen in this large project that geotechnical requirements in the EIA process with application of risk management are not only accepted but also endorsed by the project applicants. The planner can also obtain additional certainty through the geodata of the various examination processes and establish a more reliable computational model while implementing necessary changes in a goal-oriented fashion. An economic perspective and ecological education are necessary for the formulation of requirements within the EIA process in addition to the expert technical knowledge, and operation can begin in 2008 according to plan.
Environmentally Friendly Planning in Underground Engineering Includes Construction Site Logistics

Within MA 29, the Municipal Department for Bridge Construction and Foundation Engineering, the Environmental Unit is concerned with special topics related to construction. Together with “ÖkoKauf Wien”, AG 11 – Civil Engineering, new examples of requests for proposals in the areas of ship transport and rail transport were created. An additional step toward closed-loop recycling management was taken in cooperation with MA 48 and MA 42. In the mean time, MA 28 has integrated the criteria established by AG 11 – Civil Engineering, the ON Rule 23131: “Backfilling with stabilised, free-flowing filling material (SVM) – Criteria catalogue for stabilised filling materials”, into the excavation provisions.

The Criteria Catalogue for Compost is available to all planners and offices issuing requests for proposals. A technical folder on this subject has now been distributed within the municipal department as well as to outside parties. This folder as well as additional ecological sample texts for construction and planning services can be obtained from the homepage of “ÖkoKauf Wien” (www.oekokauf.wien.at).

The goal of the consultative service is to inform building developers and planners of possible environmentally relevant savings potentials. This involves construction processes in underground engineering as well as the quality requirements defined in advance. An ecological comparison is provided with regard to minimising resource consumption for the respective project in consideration of feasible financial expenditures.

Vienna's Sewer System

The roughly 2,300 kilometre public sewer system in Vienna carriers approximately 200 million cubic metres of waste water per year. MA 30 (Vienna Waste Water Management) works to ensure active protection for bodies of water with its 514 employees. In addition to ongoing operations and maintenance of Vienna’s sewer system, one of the main responsibilities of MA 30 is continuation of the waste water disposal and water bodies protection programme for Vienna, which was started in 1997. The Vienna sewer control system and the Kledering pump plant are two more key components in guaranteeing the high quality of protection for bodies of water in Vienna in the future as well.
Vienna Sewer Control System

The first phase of the new sewer control system for automated sewer system management was put into operation in 2005. In total, 330 control and regulation units, 220 waste water metering units (flow and level measurement) and 24 surface measurement units (precipitation) were installed along the main collection sewer network of the city. MA 30 implemented a system monitoring project for continuous qualitative evaluation and optimisation of the operating processes of the control system, which was completed in 2007.

Kledering Pump Plant

The “Kledering pump plant” on the Vienna-Schwechat border, situated directly on the Liesingbach stream, was completed and put into operation in 2007. The pump plant has a throughput of 1,800 litres per second and is a key element in Vienna’s sewer system management.

New Sewer Construction, Sewer Restoration, Sewer Maintenance

Every year in Vienna, several kilometres of waste water sewer are rebuilt in order to connect the last residential areas of the city to the municipal sewer system. In the years 2006 and 2007, Vienna’s sewer system grew by a total of 24.7 kilometres to achieve a level of integration approaching 99% (currently 98%).

A total of 500 smaller-scale sewer construction projects were completed in the past two years for maintenance of the sewer system. The basis for decision-making with regard to this maintenance work is supplied by continuous inspection of the sewers by the employees of MA 30. In 2006 and 2007 alone, roughly 250 kilometres of sewer pipes were inspected with sewer cameras. The underground restoration of one of the oldest collection sewers still in operation in Vienna is worthy of particular mention.

The Linke Wienfluss Collection Sewer (LWSK), also known in Vienna’s history as the “cholera sewer”, dates back to 1830 and is one of the main arteries of the Vienna sewer system. Under the most difficult geographic and hydraulic conditions, roughly 1 kilometre of this important sewer line was restored underground in two construction phases. Redirection of the roughly 1,000 litres of waste water that constantly flow through the collection sewer every second was achieved for the duration of the construction work with a steel pipeline of 1 m diameter that was laid in the river Wien. The construction work was completed successfully in 2007.

Working for Active Environmental Protection

Protecting bodies of water and providing services to citizens go hand in hand at the Municipal Department for Vienna Waste Water Management. In total, roughly 3,000 blockages were successfully removed in the past two years. Approximately 2,800 leak tests and sewer inspections contributed to preventing contamination of the groundwater by faulty building sewer systems. Roughly 1,700 sewer connections were raised, decreasing the number of sunken drainage wells and thereby also reducing the environmental burden imposed by clearing vehicles.

Commercial Waste Water

Since the Indirect Discharge Line Ordinance (IEV) entered into effect, the limit values of the industry-specific and general Waste Water Emissions Ordinance must be complied with at all waste water discharge points from commercial operations. The composition of commercial waste water has been monitored by MA 30 according to the IEV ordinance since 1998. During the course of these monitoring activities, roughly 3,000 waste water samples are taken at approximately 1,000 companies and analysed.
MA 28 – the Municipal Department for Road Management and Construction – is responsible for the planning, construction and maintenance of all public transport routes in Vienna – with the exception of the A and S motorways. Vienna currently has roughly 2,800 kilometres of roads, which must be continuously adapted to the changing needs and requirements of the road users. Consideration of environmental protection during daily work is a major challenge for the employees of MA 28.

The Most Important Sustainable Road Construction Projects in the Years 2006/2007

1. Consideration of Non-Motorised Traffic Participants

In accordance with the 2003 Transportation Master Plan as well as the goals established within the Climate Protection Programme, increased consideration is given to non-motorised traffic participants during the course of detailed road planning. Particular attention is paid here to providing sufficient pedestrian surfaces and consideration of bicycle facilities. This is intended to improve the attractiveness of walking and cycling as modes of transportation. Separate tracks for trams and bus lanes make public transport run more quickly. Capes at tram and bus stops permit entering and leaving of the vehicle without stepping down below the level of the door and achieve far more than simply improving the comfort of passengers. In many cases, they are essential to allowing passengers in wheelchairs and people with prams to make use of public transport. Lowering pavements at intersections and other pedestrian crossing points as well as guide blocks for the blind are important elements for barrier-free use of public spaces. These and many other road construction measures by MA 28 improve the conditions for environmentally friendly modes of transportation in Vienna, providing additional incentives for switching to these modes of transportation.

2.1. Pedestrian Projects

The conditions for travelling Vienna on foot are improved primarily by a number of small measures. These include widening of pavements in narrow side streets as well as the creation of safe standing surfaces at intersections and other pedestrian crossings.

Road alteration measures for making shopping streets more attractive as well as the redesign of city squares to reclaim public space for pedestrians are examples of measures that enjoy greater public awareness.
In the years 2006 and 2007, MA 28 implemented pedestrian-friendly measures in the following areas:

a. 21st district, new U-Bahn forecourts in connection with the extension of the U1 to Leopoldau – completion in autumn 2006
b. 1st, 2nd districts, new U-Bahn forecourts in the course of extending the U2 to the Ernst Happel Stadium (completion by May 2008)
c. 6th district, redesign of Mariahilfer Platz
d. 7th district, redesign of Augustinplatz
e. 9th district, redesign of Zimmermannplatz
f. 12th district, redesign of Khlesiplatz
g. 17th district, redesign of Hernalser Zentralraum (HerZ) – implementation in three phases from 2006 to 2009 (expected completion)

2.2 Bicycle Path Projects
From 2006 to 2007, MA 28 took key steps toward achieving a comprehensive bicycle path network with the detailed planning and construction of a number of bicycle paths. Many gaps were closed. Since autumn 2007, with the opening of the West Gürtel bicycle path, it is now possible to ride along the Wiener Gürtelstraße all the way from Heiligenstädtner Straße to the Südbahnhof.

The most important bicycle path projects of 2006/2007 are listed below.

a. 1st district, cycling against the oneway in Herrengasse
b. 1st, 4th districts, Karlsplatz bicycle path
c. 1st, 8th, 9th districts, bicycle facilities in the Votiv quarter (Universitätsstraße, Landesgerichtsstraße, Schottengasse, Maria-Theresien-Straße)
d. 5th district, Bräuhäusergasse – Schönbrunner Straße from Margaretenstraße to Nevillegasse
e. 5th district, bicycle path Rechte Wienzeile/Hamburgerstraße from Pilgramgasse to Weihrigasse
f. 6th district, bicycle path West Gürtel (Gumpendorfer and Mariahilfer Gürtel between Linke Wienzeile and Mittelgasse)
g. 12th district, Arndtstraße from Gaudenzdorfer Gürtel to Längenfeldgasse (bicycle path and multi-use lanes)
h. 19th district, Hardtgasse from Billrothstraße to Döblinger Hauptstraße (multi-use lanes)
i. 21st district, bicycle facilities in connection with the extension of the A22 from Nordbrücke to Lundenburger Gasse
j. 22nd district, bicycle paths Wagramer Straße between Am Freihof and Liblgasse

New bicycle path on the West Gürtel

As MA 28’s contribution to reducing pollutant emissions by our vehicles and equipment, the following measures were taken in 2006 and 2007:

a. Four old trucks were replaced by modern vehicles that meet the requirements of the Clean Air Act
b. Outfitting of ten new cars with particulate filters (2007)
c. Upgrading of 4 pieces of machinery and equipment with more than 37 kW with particulate filters
d. Upgrading of 4 pieces of machinery and equipment from 18 to 37 kW with particulate filters

4. Environmental Impact Assessment for Road Construction Projects

The 2002 Environmental Impact Assessment Act requires an environmental impact assessment for large road construction projects. This provides for better consideration of the wide-ranging aspects of environmental protection and allows greater participation by the public.

The documents for an environmental impact assessment for the project HB 14 – Klosterneuburger Straße – new route from Freudenauer Hafenstraße to 11th district Haidequerstraße were submitted at MA 22 in 2007.

Submission documents for the EIA process are currently being prepared for the following additional projects:

a. 3rd, 4th, 10th districts, Vienna Train Station: In the course of building a new central through station at the site of the Südbahnhof and a new city quarter on the train station grounds that are no longer required, roughly 10.3 km of roads should be built or altered.

b. 11th district, HB 14 – Klosterneuburger Straße from Simmeringer Hauptstraße to Klederinger Straße (Vienna and Lower Austria): Connecting of the HB 14 to the S1 via a new, 2.5 km long road section is planned.

c. 21st district, HB 229 – Jedlersdorfer Straße from Heinrich-von-Buol-Gasse to Kürschnergasse: Expansion of the HB 229 for creation of a high-volume tangential connection between Floridsdorf and Donaustadt has been planned for many years. An analysis of the project’s consequences on the environment is currently underway.
“Through parking space management in districts 1 to 9 and 20, traffic by drivers seeking parking spaces was reduced considerably.” – MA 46 Traffic Management and Organisation

“We received the Environmental Award of the city of Vienna for the use of liquefied petroleum gas engines in all new low-floor buses for reduction of carbon dioxide and nitrogen emissions.” – Vienna public transportation (Wiener Linien)

“The cooperation by all stakeholders in Vienna’s Dialogue Forum is receiving increasing international recognition.” – Vienna International Airport VIE

“At least fifty percent of the excavated material in the construction of the Lainzer Tunnel is being carried away by train, achieving a significant reduction in truck transports within the city.” – ÖBB
Parking Space Policy

With the parking space management introduced in 1993 in the districts 1 through 9 and 20, it has been possible to considerably reduce traffic by drivers seeking parking spaces and to improve the parking situation for residents. Relocating long-term parking to beyond the outer border combined with recurring evening events required new solutions in the area around the Stadthalle. A pilot programme demonstrated that it was possible to better meet the needs of residents with a restructuring of short-term parking times.

The evening traffic associated with the search for parking spaces resulting from changed working hours and longer shop hours was answered with an expansion and standardisation of the parking management hours.

Disposal Logistics via Rail and Reuse On-Site

The Vienna Hauptbahnhof construction project, which is subject to an environmental impact assessment, represents a great challenge for the planning of construction logistics. The construction project for merging of the Südbahnhof and Ostbahnhof into a through station with neighbouring construction of the Bahnhof-City, a complex of roughly 0.5 km² with space for 10,000 residents and 20,000 jobs, will require several years for completion and also generate a significant volume of demolition material and excavated material.

Through application of the RUMBA principles, a construction materials logistics concept was developed for the construction work on the ÖBB grounds that significantly reduces truck transports by road. Building material from demolition work at the Südbahnhof and Ostbahnhof and the excavation material from the new construction are sorted for recycling in two halls with storage capacities of 85,000 m² and 110,000 m² as well as 40,000 m² for concrete recycling. Track ballast of approx. 20,000 m³ is recycled and reused in the construction.

In some places the freight train station grounds are currently several meters below the level of neighbouring streets and require corresponding reshaping of the terrain for the subsequent use as a residential and recreational area.

Of the total 1,011,000 m² of excavated material, roughly 395,000 m² can be reused for this, whereby roughly 350,000 m² are intended for direct transfer with immediate reuse. The remaining approximately 615,000 m² of construction waste that cannot be recycled will be removed away by rail up to the capacity limit of roughly 2,500 m²/day and only the remainder by truck.

The on-site recycling avoids roughly 50,000 truck loads, and the rail transport saves another 75,000 truck trips on Vienna’s roads.
Transportation policy always causes a conflict between economics and ecology, but no system can balance these interests better than an efficient and socially open regional transportation network, such as practiced by Vienna public transportation (Wiener Linien). Even from a purely economic viewpoint, no other strategy fulfils the need for mobility more efficiently while simultaneously reducing energy consumption and environmentally harmful emissions; it is a true “win-win situation” for both sides!

For many people, however, mobility is a synonym for “automobility”, and the traffic participants consider their own comfort and the costs associated with the selected mode of transport to be much more important than environmental protection. Only when these criteria are clearly satisfied with public transport people will start leaving their cars at home. The research association CITY:mobil, which comprises five Austrian and German institutes and associations, developed the concept “Least-Cost Transportation Planning” in order to establish a basis for well-founded decisions in transportation policy through improved processes for evaluating the true costs of all forms of mobility. The researchers formulated the following thesis: “With an efficient transportation system that is more strongly controlled according to economic criteria, ecological improvements can also be expected.”

In the course of a similarly orientated study, the “International Association of Public Transport” (UITP) collected data from 100 cities around the world, including Vienna and Graz in Austria. The most important result: The higher the share of automobiles in satisfying individual mobility needs, the higher the costs for the general public. In comparison, these costs only represent five to seven percent of the GDP in densely settled cities (with more than 20 residents per hectare) where more than 50 percent of mobility takes place on foot, bicycle or public transport. In less densely settled, more widely spaced urban regions where the majority of mobility takes place via automobile, the costs arising for the general public from urban transportation can increase to as much as 15 percent of the GDP. Per passenger-kilometre, public transport consumes four times less energy, making it clearly more efficient than automobiles without even considering the lower space requirements.

Public Transport
In urban population centres, public transport is indisputably the most efficient alterna-
tive for satisfying mobility needs – and at the same time the most environmentally friendly. Vienna public transportation (Wiener Linien) has proven to be a sustainable answer for the globally discussed issues of transportation. In the year 2006, roughly 772 million passengers were counted by Vienna public transportation (Wiener Linien), this means that every resident of the country’s capital took roughly 470 trips on public transport. Again in 2007, a new record was set with more than 793 million trips. In other words, roughly 20.9 million more trips were taken on Vienna public transportation (Wiener Linien) in 2007 than during the previous year.

Since 2007, more than 334,000 Viennese hold annual passes. With a market share of 35% in all routes taken by the residents of Vienna, Vienna public transportation (Wiener Linien) has now “passed” private transport and is one of the leading municipal transport companies within Europe. If one simply compares these two figures with the corresponding number of private automobile trips or the actual number of cars, it is clear that Vienna public transportation (Wiener Linien) represents superior environmental protection and better quality of life for every resident of Vienna.

One factor helping to ensure that this remains the case is the integrated quality management system QSU (Quality – Safety – Environment), which Vienna public transportation (Wiener Linien) successfully finished implementing on November 22nd, 2007. The company is certified according to the standards EN 13816 and EN ISO 9001, EN ISO 14001 and OHSAS 18001. Not only the employees of the company are called upon to identify potential improvements within the scope of this quality management system. Customer reactions and the results of the monitoring audits now regularly performed by the company Trainings-, Zertifizierungs- und Begutachtungs GmbH Quality Austria also enter into the continuous improvement process that has been declared as top priority by Vienna public transportation (Wiener Linien).

Taking the U-Bahn to the Northern Edge of the City

The U-Bahn is by far the most popular and – in terms of passenger volume developments – the most successful mode of transport within the inner city, and it became still more attractive in autumn 2006 with the extension of the U1 line to Leopoldau. The formal opening of the new line section took place on September 2nd, 2006. The previously ten-kilometre-long U1 was expanded by five kilometres – in other words, a 50% increase – to a total of 15 kilometres. The five new stations of Kagraner Platz, Rennbahnweg, Aderklaaer Straße, Grossfeldsiedlung and Leopoldau were added to the previous 14, making 19 stations now available to passengers on the U1 line. With completion of the new section, Vienna’s U-Bahn network now encompasses a length of more than 66 kilometres. This corre-
CHAPTER 3 VIENNA IN MOTION

The U1 requires only 26 minutes to travel 19 stations from Reumannplatz to the end station Leopoldau and make a complete trip across Vienna from south to north.

The distance between Vienna and St. Pölten. It takes only 26 minutes to travel nearly all the way across Vienna from south to north on the U1 from Reumannplatz to the new end stop at Leopoldau.

Work has been underway on the extended section of the U2 since summer 2003. As of May 10th, 2008, in time for the European Football Championship, it will be possible to ride the U2 beyond the previous end station of Schottenring through the stations Taborstraße, Praterstern, Messe Prater and Krieau all the way to the Ernst Happel Stadion. Even for large events it is possible to convey a large number of visitors to the stadium without significant waiting time.

At the end of September 2006, Vienna public transportation (Wiener Linien) also started work on extending the U2 line over the Danube into the 22nd district. Completion of the extension to Aspern via the stations Donaumarina, Donaustadtbrücke, Stadlau, Hardeggsasse and Donaupark is planned for December 2010. This will provide the second-largest Viennese hospital after the General Hospital (AKH) with a direct U-Bahn connection. The Donaupark station will be the 100th U-Bahn station built in Vienna. The first U-Bahn station (Karlsplatz) went into operation in 1978. Building 100 stations in roughly 30 years is certainly quite an achievement. With the new end station Aspernstraße, the U2 line will cross the city from Karlsplatz through Praterstern and to Donaustadt within 25 minutes.

Based on previous experiences with U-Bahn construction, Vienna public transportation (Wiener Linien) expects that, with sufficient inclusion of citizens in the process, it will be possible to find satisfactory and well-accepted solutions in the design of above-ground development after completion of the construction work. For this reason, the interests of the public are examined and given consideration within an appropriate framework, particularly with regard to functional issues. With respect to the integration of the already existing route network and planned bicycle routes or footpaths, the newly built U-Bahn stations represent important linkage points for recreation-seekers. The design of the station areas reflects this fact.

In order to minimise noise emissions in the area of elevated stations, all stations of the U2 extension are closed. The station buildings are designed transparently with bird protection windows and the roofs are planted with greenery. To improve the infrastructural connections, appropriately dimensioned bicycle parking facilities are planned at every station. In addition, measures are being implemented to improve links with recreationally relevant route connections in accordance with the area around each station. The safety system of Vienna’s U-Bahn lines has proven itself over more than three decades, is constantly kept up-to-date and ensures safe and environmentally friendly operation of this key mode of transport through appropriate organisational, operational and physical design measures.

The established priorities in line extensions and network expansions focus on those route sections that yield sufficient potential for further city developments or significantly improve the “modal split”, particularly with regard to people living outside of Vienna. Financing of the further expansion of Vienna’s U-Bahn system was secured in 2007. A total of 1.85 billion euros will be invested in the fourth expansion stage of the Vienna U-Bahn by the city and the federal government. As before, the costs will continue to be divided 50:50 between the province of Vienna and the federal government. In its 4th expansion stage, Vienna’s U-Bahn network will be extended by roughly 14 kilometres. This will be realised in three stages. The first stage will take the U2 north to the Aspern airfield, including four new stations, completed by the year 2013. Opening of the U1 south to Rothneusiedl with six new stations, completed by the year 2015, and completion of the U2 south to the Arsenal with five new stations should take place by 2019.

ULF & Co Driving toward Environmental Protection

At the start of the 60s, Vienna public transportation (Wiener Linien) began to use liquefied petroleum gas as a fuel in its buses. Today, all buses...
operate with liquefied petroleum gas engines. Liquefied petroleum gas buses are significantly more environmentally friendly than diesel buses. Due to its simple chemical structure, liquefied petroleum gas burns exceptionally cleanly and produces virtually no soot. The nitrous oxide emissions from liquefied petroleum gas buses are also lower than diesel buses thanks to the use of regulated three-way catalytic converters. For these reasons, Vienna public transportation (Wiener Linien) outfitted all its buses with catalytic converters even before it was legally necessary to do so. Naturally, the new generation of low-floor buses also makes use of liquefied petroleum gas engines with lambda sensors and three-way catalytic converters, which represents an important step into the future. As a result, Vienna has one of the best drive concepts for minimum-emissions passenger transportation in urban areas. The emissions values not only lie far below the current exhaust standard EURO IV as well as the EURO V standard entering into effect in 2008, they are also below the EEV (Environmental Enhanced Vehicles) standard.

With the newly developed liquefied petroleum gas engine used in all new vehicles since the end of 2005, these new vehicles even satisfy the EEV 2 standard. A study by Gerd Sammer (University of Natural Resources and Life Sciences in Vienna) shows that, in the year 2001, running the bus fleet on liquefied petroleum gas prevented a total of 55 tonnes of CO₂, 21 tonnes of HC, 219 tonnes of NO₂ and 17 tonnes of particles compared with diesel operation. No other engine is as environmentally friendly! Use of the world’s most environmentally friendly engine generation is a voluntary and effective environmental measure for reduction of carbon dioxide and nitrous oxide emissions. For these efforts, Executive City Councillor for the Environment Ulli Sima recognised Vienna public transportation (Wiener Linien) with the Environmental Award of the city of Vienna. Another significant improvement for passengers is the conversion of the entire bus fleet to comfortable low-floor vehicles, which was completed in mid-2007. Vienna public transportation (Wiener Linien) put the first low-floor buses into operation in 1991. In 1995, the first articulated buses in low-floor design joined the fleet. The buses have a ramp for handicapped people that can be folded out when needed and a kneeling mechanism that permits lowering of the vehicle. Vienna public transportation (Wiener Linien) is also setting new standards with full air conditioning of the buses. Already since the start of 2006, all new buses put into operation are equipped with climate-controlled passenger areas that offer passengers a comfortable ride even on very hot days.

The “ULF” (Ultra Low Floor) tram type in use since 1997 is a highly capable vehicle that was designed in cooperation with the Siemens business unit now known as Siemens Transportation Systems (TS) and combines many advantages for both passengers and the environment. For instance, a completely new, computer-controlled single-wheel suspension makes possible the world’s lowest entrance height for a tram: just 19 centimetres above street level. Because the tram has no axle between the wheels, there are also no steps or obstacles on the inside. ULF also stands for energy-saving operation, and in addition to active current heating, the trams are also capable of feeding energy back into the network. After extensive testing with two prototypes, the first series-produced vehicles were put into operation at the end of 1997. Over the years, Vienna public transportation (Wiener Linien) has continuously replaced older vehicles with ultra-low-floor trams. After the 150 ultra-low-floor trams of the first ULF generation, Vienna public transportation (Wiener Linien) received the first vehicle of a new ULF generation from the manufacturer in January 2007. By the end of 2014, a total of 300 ULFs will be carrying passengers in Vienna. The new ULF retains the basic concept of the earlier generation: the lowest entrance height of 19 centimetres, the maximum door widths, the high travel speed and the modern drive technology. The design of the front section, however, is new. This facelift plus the new interior colour scheme that meets the needs of the visually impaired have given the ULF a fresh appearance. Plastic seats and external panelling with reduced fire load and a fire detection system also contribute to increased passenger safety. In addition, the new ULF is climate-controlled, making it even more comfortable for the passengers.
Klim(a)Bim On the Move

From April 4th to May 6th, 2006, one low-floor tram specially outfitted by Vienna public transportation (Wiener Linien) as the “Klim(a)Bim” (climate tram) was in operation on the tram line 2. Information on climate protection in Vienna could be found inside the tram. All passengers with a valid ticket had the opportunity to ride on the Klim(a)Bim. Numerous Viennese used the trip on the Klim(a)Bim to converse with the environmental protection experts. Conversation hours – including with Ulli Sima, Executive City Councillor for the Environment, and experts from the Vienna Climate Protection Programme – were offered as a service to the passengers. The experts were also available to answer questions on all aspects of the environment and climate protection. The Klim(a)Bim, a joint project of the Environmental Unit, the office of the Vienna Environmental Ombudsman, Global 2000 and the Vienna Climate Protection Programme, was supported by Wien Energie Fernwärme.

Warm Water from Environmentally Friendly Solar Energy

The Rudolfsheim tram depot was outfitted with a solar system in 2006. In 2007, the Hernals depot and the new Leopoldau bus garage were also equipped with solar systems. Vienna public transportation (Wiener Linien) has used energy from the sun since 2001 to produce hot water for the workshop employees as well as for heating as part of its contribution to climate protection. The first train station equipped with solar technology was the U-Bahn station Wasserleitungswiese, where solar systems were put into operation in 2002. In the same year, the Rösslergasse and Hüttdorf stations also began harnessing the power of the sun. The Michelbeuern station received two solar systems in 2003 and 2004, and the Floridsdorf station was equipped with a solar station in 2005. The solar power technology avoids the production of a large volume of CO₂.

Reducing Energy Consumption in Our Own Buildings

Wiener Stadtwerke has established the goal of reducing its absolute energy consumption in administration by 10%, assuming a steady volume of business. This goal will be achieved through a multi-year programme with measures that include the installation of thermally insulating building elements such as thermally insulating windows as well as facade and roof insulation.
Environmental Policy at the VIA

Flughafen Wien AG (Vienna International Airport) is dedicated to a protective and conscious attitude toward the environment. Improvement measures are defined and implemented within daily processes based on comprehensive monitoring of environmentally relevant data. Central issues are noise and pollution emissions, supply and disposal as well as optimisation of energy use. The company management places great value on constant coordination of measures with nearby residents. For this reason, the Vienna International Airport Dialogue Forum was established in 2005 together with local residents, citizen’s initiatives, Austro Control and Austrian Airlines.

FANOMOS Hears Everything

FANOMOS (Flight Track and Noise Monitoring System) measures aircraft noise pollution and integrates radar data to record the flight paths, speeds and altitudes of all flights. In 2007, 45 mobile measurement series (2006: 35) were recorded to supplement the results of the 14 fixed measurement points. This increase in the number of measurements was made possible through the acquisition of a third mobile measurement system.

Night Flight Movements

In 2007, the percentage of flights during the hours between 10 pm and 6 am remained the same as the previous year at 6.9%. Due to the increasing volume of flights, however, the absolute value increased by an average of 48 flights per night (2006: 45). According to an agreement reached in the mediation process, the first reduction of night flights during the time from 11:30 pm to 5:30 am took place in 2007. The airport is continuing its compliance with the prohibition on night flights.

Air Quality Under Observation

The equipment provided by the Vienna International Airport is part of the air quality measurement network of the province of Lower Austria and is operated by the province.

Vienna International Airport Noise Protection Programme

In 2006, implementation of the technical noise protection agreed upon within the mediation agreement was begun under the title “Vienna International Airport Noise Protection Programme”. A majority of the affected residential buildings were inspected by experts in 2007.

Vienna International Airport Dialogue Forum

The association Vienna International Airport Dialogue Forum was founded following the mediation process in the year 2005. The organisation pursues the goal of addressing the issues that could not be resolved within the process as well as new issues that arise due to ongoing developments. The Vienna International Airport Dialogue Forum documents its activities in various publications as well as on its own website. The cooperation by all stakeholders in the Dialogue Forum is also receiving increasing international recognition.

Web Tips

- [www.vie-umwelt.at](http://www.vie-umwelt.at) - Environmental homepage of Flughafen Wien AG (Vienna International Airport)
- [www.numbis.at](http://www.numbis.at) - Data from the pollution measurements
- [www.laermsschutzprogramm.at](http://www.laermsschutzprogramm.at) - Information on the Noise Protection Programme at the Vienna International Airport
- [www.viemediation.at](http://www.viemediation.at) - The concluded mediation process
- [www.dialogforum.at](http://www.dialogforum.at) - The work in the association Vienna International Airport Dialogue Forum
Environmental Protection on Rails

With the smoking ban, ÖBB-Infrastruktur Betrieb AG complies with the wishes of its customers as well as the statutory requirements that stipulate the prohibition of smoking in publicly accessible enclosed spaces. In surveys of ÖBB customers, 72% approved the introduction of non-smoking train stations.

Non-smoking train stations make an important contribution to protecting the health of children and non-smokers. As the gateways to cities, access points for public transport and shopping areas, the non-smoking train stations create a comfortable and customer-friendly atmosphere. Well-maintained train stations create a positive image that benefits everyone. The elimination of smoking in the stations of ÖBB brings greater cleanliness and improves quality of life and the environment.

Major Service Centre of ÖBB-Postbus GmbH in Vienna Receives Environmental Certification!

With successful completion of the “Ökoprofit” project, the Vienna Bus Truck Car (BTC) Center in Wien-Erdberg has been certified according to the environmental standard ISO 14001:2004 since the end of 2007. In the process lasting several months, the team led by environmental manager Johannes Artinger not only optimised processes from environmental perspectives, it also raised awareness of environmental issues among the roughly 80 employees.

The entire environmental team was highly committed to the process, making it possible for the Vienna BTC Center to finally obtain the environmental certificate according to ISO 14001:2004 at the end of last year after fulfilment of all requirements and inspection by TÜV.

Illegal Dumping of Waste on ÖBB Grounds in Vienna

The freely accessible grounds of ÖBB – in particular the large freight stations in Vienna – are regularly misused for the illegal dumping of waste. Regular clearing measures must be implemented to keep this the problem under control. The waste is sorted in an attempt to identify the culprits, for example based on the chassis identification number on wrecked automobiles. When such identification is successful, administrative criminal proceedings are initiated against culprits at the District Administration Authority and they are sued in civil court for the costs of disposal.
“We recognise the services of the Vienna waste managers and the commitment of the employees in the area of waste management through presentation of the award, Vienna Waste Manager of 2006.” – Municipal Department for Environmental Protection – MA 22

“The new plastic sorting plant in ‘Tent 48’ is the most modern in Europe and ensures optimal recycling of plastic bottles.” – MA 48 Waste Management, Street Cleaning and Vehicle Fleet

“The professional work in ecological animal waste processing guarantees safe feeding of our domestic animals and makes an important contribution to maintaining a healthy population of production animals.” – MA 60 Veterinary Office
The duties of the employees of the Waste and Resource Management Unit (AREM) of the Municipal Department for Environment Protection – MA 22 include inspections performed on-site as well as based on submitted documents. The activities of experts are closely connected with the obligations of the Environmental Law Unit of MA 22, as described in Chapter 1.


**Waste incineration plant Spittelau**

The inspection of Waste Collecting and Treatment Companies Registered in Vienna

In 2007 inspections process of the Waste and Resource Management Unit of the Municipal Department for Environmental Protection had the focus on-site control of 66 collecting and treatment companies of hazardous and non-hazardous waste. The inspections checked whether the records required by the Waste Documentation Ordinance were properly maintained, and storage level checks were performed based on the supplied volume records and the documentation of the specific organisations. In addition, entries in the electronic register were inspected in accordance with the requirements in § 22 of the Waste Management Act. During the course of the inspections, the operations were advised by municipal experts and informed of new provisions of waste management laws.

The waste management at several construction sites was also inspected, and numerous cases of illegal dumping on private property were discovered, as is the case every year.

For clarification of waste management questions and to obtain a basis for strategic recommendations scientific projects are commissioned and work groups established.

**Heavy Metals in Vienna’s Residual Waste**

Since the year 2000, the levels of various heavy metals in Vienna’s residual waste have been analysed, such as at the waste incineration plant MVA Spittelau.

The investigations show that the levels of both cadmium and mercury have decreased significantly since the year 2000. Over the same period, zinc concentrations appear to exhibit a slightly decreasing trend. No clear trend could be observed for the other elements examined.

Another project, “Monitoring Concept for Determination of Causes for Changes in Heavy Metal Levels in Vienna’s Residual Waste”, is intended to determine which fractions of residual waste significantly influence the heavy metal content of the waste. According to the results of this project, heavy metals primarily enter into the waste via hazardous waste (batteries, paint cans, etc.), electronic scrap and metals. Roughly 85% of the mercury and 45% of the lead comes from hazardous waste and 50% of the copper from electronic scrap. Aluminium, iron, zinc and chromium primarily enter the waste through metals. Despite the low share of these materials in the waste by weight (hazardous materials: 0.75% by weight, electronic scrap 0.75% by weight and metals 3% by weight), the materials contribute significantly to the heavy metal input. Greater attention must be paid in the future to separate collection of these types of waste.

**Bioplastics Platform**

Bioplastics are enjoying increasingly broad use as a replacement for typical plastic. These biodegradable plastics produced from substances such as starch or polylactic acid are frequently an equivalent alternative to plastics produced from fossil-based resources but can also offer additional advantages. In order to identify bioplastics applications that are particularly useful for Vienna to create suitable
framework for their sustainable use, the Municipal Department for Environmental Protection – MA 22 has initiated a Bioplastics Platform to promote those bioplastics that are especially relevant for environmental protection and climate protection. The most important partners, such as Chambers of Commerce, Employees’ Chambers, Chambers of Agriculture, trade interests, interest groups, the scientific community and representatives of public administration, were invited to work with the Bioplastics Platform on a broad basis to produce a jointly defined position for Vienna.

In some cases, there exists a need to establish regulations for specific procedures. For example, MA 22 initiated an ÖNORM rule for identification of harmful substances in buildings.

Identification of Harmful Substances in Buildings Before Demolition Work

Buildings frequently also contain harmful substances, such as asbestos, polychlorinated biphenyls (PCB), polyaromatic hydrocarbons (PAH), synthetic mineral fibres, etc., which can pose health, safety and environmental risks in case of improper demolition. For this reason, the expected harmful substances should be identified prior to building demolition. This is also important with regard to achieving quality standards in order to use the building debris in recycling construction materials. For this reason, the Municipal Department for Environmental Protection – MA 22 initiated and promoted the creation of ÖN rule ÖN 192130, “Identification of Harmful Substances in Buildings Before Demolition Work”. This ÖN rule has been available since May 1st, 2006.

4th and 5th Environmental and Waste Managers Days

Vienna’s Municipal Department for Environmental Protection – MA 22 and TÜV Österreich Akademie have joined together for several years to host the Environmental and Waste Managers Day at the Vienna Rathaus as an event for interested companies. This annual event is an important platform for waste and environmental managers, whose activities, ideas and projects make significant contributions to considerable reduction of the environmental impact of Austrian companies.

In 2006, the event focused on the importance of teamwork in environmental protection at companies. Olympic champion and trainer Toni Innauer was obtained as a prominent speaker with great experience in the area of motivation. In 2007, climate researcher Prof. Helga Kromp-Kolb spoke about the key area of climate protection.

Vienna Waste Manager of 2006

In order to honor the services of Vienna’s waste managers and employees in the area of waste management, the Municipal Department for Environmental Protection – MA 22 presented the award “Vienna Waste Manager of 2006” as well as a commendation for the longest-serving waste managers and representatives on November 28th, 2006.

Environmentally Friendly Planning and Building

Enormous quantities of energy resources and waste can be saved and negative environmental impacts avoided in the area of building planning and execution through building planning with consideration...
for environmental aspects, ecologically-oriented building management and waste management and construction measures that contribute to energy efficiency and thereby climate protection.

To better familiarise the corresponding target groups with these approaches, the Municipal Department for Environmental Protection – MA 22, in cooperation with the Chambers of Architects and Engineering Consultants for Vienna, Lower Austria and Burgenland, held a professional conference at the Vienna Rathaus on September 3rd, 2007. This event offered architects, construction engineers, building developers and representatives of the city of Vienna an opportunity to learn about the successful projects implemented to date, such as RUMBA – Guidelines for Sustainable Construction Site Management – and “Thürnlhof”, the most environmentally friendly construction site in Europe, as well as best practice examples and effective measures for reducing the impact of construction. Due to the high level of interest and the actuality of the issue, the Municipal Department of Environmental Protection – MA 22 is planning to host the professional conference again. All conference articles and reports can be found at [http://www.wien.gv.at/umweltschutz/abfall/bauen.html](http://www.wien.gv.at/umweltschutz/abfall/bauen.html).

The Waste and Resource Management Unit is also implementing projects for waste prevention and saving resource, such as providing the Vienna Web Flea Market as an Internet market service and supporting projects within the framework of initiatives for the reduction of waste (Waste Reduction Initiative, Repair Network).

**Vienna Web Flea Market**

The Municipal Department for Environmental Protection – MA 22 established the Vienna Web Flea Market ([www.webflohmarkt.wien.at](http://www.webflohmarkt.wien.at)) as an Internet platform for selling, trading or giving away items that have not yet reached the end of their useful life. With this successor to the Vienna Used Goods Exchange, articles can be offered or requested with up to 3 images. In this way, household and office articles, toys and sporting equipment, devices, tools and construction materials can find new users and are not disposed of as waste. The Vienna Web Flea Market is primarily intended for the greater Vienna region, features an easy-to-use interface, does not inflict annoying advertisements on the users and also offers useful information on the service pages.
The Municipal Department 48 - Waste Management, Street Cleaning and Vehicle Fleet is responsible for the collection and treatment of residual waste and recyclables. Proper waste handling must take into account the perspectives of resource conservation, minimising hazards and the type and suitability of the waste as well as allocating waste to the appropriate, state-of-the-art recycling, reuse and disposal plants. These considerations are the basis for the priorities of the Waste Management Act: waste prevention first, waste recycling second, waste disposal third.

Waste Prevention

Waste prevention and resource conservation have the highest priority in Vienna. This can be seen in the numerous programmes and initiatives of the city of Vienna, all of which share the goal of sustainable utilisation of resources.

MA 22 and MA 48 support projects of the initiative “Naturally Reducing Waste” and actively implement numerous measures within their areas of activity that are dedicated to sustainable handling of waste.

Tips & More Information: www.natuerlichwien.at/wenigermist

Projects:

• Vienna Repair Network – Repair it, don’t toss it www.repanet.at
• Toy collection at waste collection points and in Vienna’s kindergartens for worthy causes
• The 48 Bazaar – “Old but good” – flea market goods from Vienna’s waste collection sites
• Bring a sack for your finds – Ecological Christmas packaging
• Eco Event Plan 2007 – Hosting environmentally friendly events
• “Eco-Checkers” at the ZOOM Children’s Museum – Sustainability exhibit for children
• Sustainable Breakfast – of regional organic and FAIR TRADE products
• Web Kitchen – food tips and tricks: http://webkueche.natuerlichwien.at

Waste Collection

The approximately 400,000 containers provided for collection of non-recyclable waste and recyclable materials were emptied roughly 26 million times by MA 48 personnel during 2007.

Roughly 190,000 containers are made available on private properties and in public areas for sorted collection of paper, white glass, coloured glass, metals, organic waste and hollow...
plastic containers. MA 48 collects approximately 1 million tonnes of waste every year.

Recycling and Treatment
Roughly 40% of the waste was collected separately (recyclable materials, organic waste, hazardous materials and inert substances such as construction scrap), allowing it to be recycled.

With the commissioning of the waste incineration plant Pfaffenau in autumn of 2008, non-recyclable and bulky waste is completely thermally treated – with utilisation of its energy content – so that only inert materials (primarily solidified incineration residues) need to be landfilled.

The Most Modern Plastic Sorting Plant in Europe Ensures Optimal Recycling
The new plastic sorting plant in “Tent 48” now employs state-of-the-art technology for the recycling of plastic bottles.

The material from plastic bottle collections, which is largely free of disruptive substances and inappropriate materials, is now sorted by material and colour through the multi-stage use of the newest generation of sorting equipment. This plant makes it possible to ensure sorting purities over 98% in four separate categories (PET in 3 colours and HDPE). These plastics are then used in high-quality material recycling processes, primarily for the production of new PET beverage packages in “bottle-to-bottle recycling”.

“Biogas Vienna”
The extensive services offered by MA 48 for ecologically meaningful disposal of waste in the interests of closed-loop recycling management have now been further expanded with the plant “Biogas Wien”. In the current expansion phase, clean energy can be obtained from an annual total of 17,000 tonnes of organic waste, which saves 3,000 tonnes of CO₂; the resulting digested residue is composted. In this way, Vienna sets yet another example in the use of alternative energies and climate protection. In the future, this plant will supply 600 Vienna households with district heating.

8th International Conference on Waste Management
Under the title “Safe and Clean”, the city of Vienna, represented here by MA 48, is hosting an international waste management conference now for the 8th time. From November 26th to 28th, 2007, the title was “Safe and Clean” and “Safety of disposal & Clean City”. 300 participants from 26 nations used the conference as an international platform for communication and discussion.

“Clean City Campaign”
Vienna already numbers among the cleanest cities in the world, but the international phenomenon of an increasing number of people heedlessly throwing rubbish out onto the street has been observed even in Vienna.

To counteract this trend, this comprehensive set of measures was established:
• Pilot project “Mobile Hazardous Waste Collection” with SMS and email information service, in 2 districts
• 1,000 additional public wastepaper baskets
• 150 below-ground wastepaper baskets with a capacity of 600 l
• Expanding street cleaning to 1,200 people
• Mobile task group – Sweeping Force
• 1,450 dispensers with dog stool bags
• Public supervisory bodies (Waste Watchers) for monitoring and penalising the soiling of public spaces (littering)
SEA – Strategic Environmental Assessment of the Vienna Waste Management Concept 2007 (AWK 2007)

After an 18-month strategic environmental assessment process for the Vienna Waste Management Concept 2007 according to the requirements of EU directive 2001/42/EC and with intensive participation by numerous experts from various departments of Vienna’s municipal administration, the scientific and business communities and representatives of the qualified public, the Vienna Waste Management Concept 2007 and the associated environmental report were passed by the Vienna provincial government on 11 December 2007.

The process was led by Municipal Department 48, in cooperation with MA 22 and the office of the Vienna Environmental Ombudsman.

The city of Vienna is dedicated to effective, modern and state-of-the-art municipal waste management services. The focus always lies on protection of people and the environment, disposal self-sufficiency, treatment safety, climate protection and resource conservation as well as the necessary financeability of the respective measures.

In addition to depicting the current status of Vienna’s waste management and current waste management forecasts, the AWK 2007 contains a number of different measures that should be implemented in the coming years.

All developed measures were evaluated with regard to their environmental impact and apply to a wide range of topics: from waste prevention, littering, waste sorting, waste collection and waste treatment to aspects of environmentally friendly waste transport. Naturally, financial perspectives as well as national and international cooperation are also addressed by the concept.

The most important waste management topics were:

• Promoting waste prevention
• Optimising the collection of old metals, …
• Construction of a baling plant for waste to secure sufficient supply regulation and fail safety.
• Optimising the handling of incineration residues for improving self-sufficiency & resource conservation
• Optimising the handling of “Waste Electrical and Electronic Equipment”
• Despite optimal utilisation of the existing Rautenweg landfill, an immediate search for a new landfill site is essential
• The organic waste management as practiced for many years received a technically found-ed confirmation. The organic waste collection system, the system of open composting and the close cooperation with Viennese agriculture will be continued – with consideration of further improvements. A strong emphasis was also placed on the collection and handling of food waste from large operations and on energetic utilisation of biomass. The results of the process obtained through a consensus of all experts and extensive participation by the general public represent an important basis for further operational planning of waste management in Vienna.

All documents are available at https://www.wien.gv.at/ma48/awk/index.htm for downloading.

Biogas Vienna and incineration plant Pfaffenau
Proper, legally compliant disposal of animal products according modern scientific and technological principles prevents the spread of pathogens and ensures that neither hazardous residual wastes nor unsuitable by-products enter into feed production. This guarantees safe food for our pets and makes an important contribution to maintaining a healthy population of production animals. Healthy production animals are the basis for supplying the populace with safe and high-quality food. Proper disposal of animal by-products and dead animals also makes a valuable contribution to environmental protection.

The extremely important task of disposing of animal by-products is handled within the province of Vienna by Tierkörperbeseitigung Wien GmbH Nfg KG (owned by Entsorgungsbetriebe Simmering GmbH), which is subject to supervision by the Veterinary Office (MA 60).

Tierkörperbeseitigung Wien GmbH charges private businesses for its services in picking up and disposing of animal by-products and also acts under contract to the city of Vienna. These municipal duties are regulated in a service contract.

The cases of avian influenza occurring in the wild bird population in the year 2006 represented a major challenge for MA 60 and TKB-Wien. All reported finds of dead wild birds were picked up by TKB after documenting of the locations where they were found. The collected dead birds were subjected to a veterinary examination on the premises of TKB and, in some cases, sent to AGES Mödling for further examination. A total of almost 2,500 birds were collected in 2006, of which 400 animals received virological examinations at AGES Mödling. In order to perform this task, TKB-Wien established a stand-by service that required the use of additional personnel.

The new service contract between MA 60 and TKB-Wien concluded at the end of 2007 guarantees the safe and proper disposal of animal wastes (by-products) in the future as well.

### DISPOSAL BY TIERKÖRPERBSEITIGUNG WIEN GMBH NFG KG:

<table>
<thead>
<tr>
<th><strong>NO. OF ANIMALS</strong></th>
<th><strong>WEIGHT KG</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><em><em>SRM</em> AND MATERIAL OF CATEGORY 1</em>*</td>
<td></td>
</tr>
<tr>
<td>Cattle (excluding calves/young cattle under 1 year)</td>
<td>5</td>
</tr>
<tr>
<td>Calves/young cattle under 1 year</td>
<td>0</td>
</tr>
<tr>
<td>Sheep/goats (excluding young animals under 1 year)</td>
<td>73</td>
</tr>
<tr>
<td>Young animals (lambs and kids) under 1 year</td>
<td>7</td>
</tr>
<tr>
<td>Dogs and cats</td>
<td>9.457</td>
</tr>
<tr>
<td>Other cat. 1 animal corpses (pets, zoo animals, test animals)</td>
<td>47.490</td>
</tr>
<tr>
<td><strong>WEIGHT KG</strong></td>
<td></td>
</tr>
<tr>
<td>SRM waste</td>
<td>128.667</td>
</tr>
<tr>
<td>Other cat. 1 mat. (e.g. mixing with cat. 2/3)</td>
<td>278.420</td>
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</table>

<table>
<thead>
<tr>
<th><strong>NO. OF ANIMALS</strong></th>
<th><strong>WEIGHT KG</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CULLED ANIMALS AND MATERIAL OF CATEGORY 2</strong></td>
<td></td>
</tr>
<tr>
<td>Horses and solpeds</td>
<td>161</td>
</tr>
<tr>
<td>Cattle (excluding calves/young cattle under 1 year)</td>
<td>88</td>
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<tr>
<td>Calves/young cattle under 1 year</td>
<td>0</td>
</tr>
<tr>
<td>Pigs (excluding piglets up to 50 kg)</td>
<td>53</td>
</tr>
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<td>Piglets up to 50 kg</td>
<td>15</td>
</tr>
<tr>
<td>Sheep/goats (excluding young animals under 1 year)</td>
<td>28</td>
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<tr>
<td>Young animals (lambs and kids) under 1 year</td>
<td>7</td>
</tr>
<tr>
<td>Other animals (e.g. wild)</td>
<td>468</td>
</tr>
<tr>
<td>Fish</td>
<td>42</td>
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<tr>
<td>Poultry</td>
<td>352</td>
</tr>
<tr>
<td>Slaughter waste/confiscations – category 2</td>
<td>0</td>
</tr>
<tr>
<td>Other (e.g. birds)</td>
<td>2.438</td>
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| **WEIGHT KG** | |
| Waste from slaughter/butchering operations etc. | 3,375,073 | 3,813,361 |

<table>
<thead>
<tr>
<th><strong>TOTAL NUMBER OF TRANSACTIONS</strong></th>
<th><strong>NO. PER PIECE</strong></th>
</tr>
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<tr>
<td>Pickups</td>
<td>19,807</td>
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<tr>
<td>Receipts</td>
<td>805</td>
</tr>
<tr>
<td>Total</td>
<td>20,612</td>
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“The planned rezoning of the Steinhofgründe was prevented thanks to our special initiative.”

“We want to raise awareness of the fact that an exceptionally large diversity of species can be found not only in the Amazonian rain forest but also directly at our doorstep.” – Municipal Department of Environmental Protection – MA 22

“Through the application of biological pest control as well as beneficial insects and lure traps, environmentally friendly cultivation is taking place in the Hirschstetten flower gardens, tree nurseries and the Kagran educational garden.” – Municipal Department for Parks and Gardens – MA 42

“In the years 2006 and 2007, over 40,000 m² of land in Vienna was reforested within the programmes ‘Educational Forest’ and ‘Viennese Children’s Forest’.” – MA 49 City of Vienna Forestry Office and Urban Agriculture
Nature Conservation

Modern Urban Nature Conservation for Vienna
In addition to traditional, proven instruments, contemporary nature conservation requires active, forward-looking and successful communication of goals as well as motivation for the implementation of measures.

Protection of that which is rare is supplemented by encouragement of that which is close by, and official instruments such as the declaration of protection areas are supplemented by nature conservation based on partnerships and conservation agreements.

Protection Areas and Natural Monuments
Roughly 30 percent of Vienna’s land is designated as protection areas according to the Vienna Nature Preservation Act and the Vienna National Park Act, and the strictest protection area category is the national park. Landscape protection areas make up the largest share. The categories “protected landscape area” and “ecological development area” as well as “natural monument” are applied to smaller areas. Interventions are prohibited or restricted in scope depending on the type of protection area.

New Landscape Protection Areas
The Währing Landscape Protection Area was established in 2007. With this measure, all Vienna Woods districts now have landscape protection areas. The borders of the Prater Landscape Protection Area were redrawn and expanded by 17 ha.

Natural Monuments
As of the end of 2007, Vienna has 429 natural monuments. The vast majority of these are large individual trees; however, stands of trees, woods, avenues and rows of trees, areas of special significance for fauna and flora as well as geological outcrops, bodies of water and remnants of alluvial forests also enjoy this protection.

Habitat projects are also carried out. For instance, nurturing of meadows and the edges of wooded areas is intended to support butterflies and molluscs, and additional ponds provide new habitat for tree frogs and other amphibians. Pamphlets provide information about nature conservation measures and motivate participation.

Biodiversity Day
The aim of this day is to raise awareness of the fact that an astonishing biodiversity exists not only in the Amazonian rain forest but also right on our doorstep.

Biodiversity Day 2006 was held on Danube Island in cooperation with MA 49, and the event in 2007 took place in cooperation with Vienna’s 5th district.

Nature Conservation Agreement
One instrument for implementation of nature conservation measures is the nature conservation agreement, by which private law contracts are concluded on a voluntary basis. Compensation is provided for lost revenue or additional expenditures.
The sub-programme “Field Habitat” is directed at Vienna’s farmers and aims to take fields out of use entirely or partially for a limited period and convert them to swaths of wild plants, short-term or long-term uncultivated land or dry meadows through appropriate caretaking measures.

Another sub-programme called “Hedge Habitat” was successfully continued in 2006 and 2007. Numerous gardeners took advantage of the offer of free native bushes.

Toad Walk
Every year in the spring, thousands of toads migrate back to the pools and ponds where they were born. To make their journey easier, toad protection fences and toad tunnels are erected and warning signs are posted. The Magdalenenhof pond was cleaned and a new spawning pool was created at the edge of the Vienna Woods.

Nature Network
In accordance with § 15 of the Vienna Nature Preservation Act of 1998, the provincial government must establish a species and biotope protection programme.

Nature protection guidelines with goals and recommended measures now exist for all districts. They establish the framework and define the contents for all future nature protection planning and measures in Vienna outside of the national parks and the Lainzer Tiergarten nature reserve.

Many measures have already been implemented. A particularly beautiful growth of lizard orchids was preserved on the “Eiserne Hand” in Döbling. On the Adolfsstor meadows and Afritschheim grounds in Hietzing, improved living conditions were created for the Viennese copse snail, the smooth snake and the great banded grayling butterfly through the care of meadows and the edges of woods.

But also tree frogs, green toads and the little bittern bird should feel more comfortable in Vienna in the future. Four new pond areas were created and revitalised for them and many other species of plants and animals within the Nature Network programme. Bats also benefit indirectly from the large insect populations around the ponds.

As a public relations measure, an information pamphlet was distributed for project partners, lectures were held about old trees and small gardens, brochures were published (“Housing Service for Wildlife”, “Vienna Copse Snail & Co.”, “Wild Bees in Vienna”) and much more.

Vienna's City Gardens

The City of Parks
Green is the colour of Vienna. 5% of the city consists of parks in the broadest sense. This amounts to roughly 19 km² (out of 414 km²), distributed among hundreds of individual plots, large and small parks and green swaths.

The creation, alteration and innovative restructuring of these areas are often motivated by the wishes of citizen’s initiatives or the residents of the city. Such efforts are facilitated by teamwork with the professional institutions active in this area. These include District Directors (MA 42 has a decentralised budget), local associations, the Municipal Department for Education, Out-of-School Activities
for Children and Young People (MA 13) and the regional maintenance teams. Joint efforts enable the creation of park facilities that are accessible, bright and appropriate for many interests, target groups and functions.

**Vienna’s Parks and Gardens**

Parks are made for people, but the nature they contain may never be neglected. Numerous measures ensure ecological wildlife retreats, city wilderness and butterfly meadows wherever possible. This involves close cooperation with MA 22, environmental consultants and environmental ombudsmen on measures including: Planting of tree groves as food and breeding grounds, construction and maintenance of (wetland) biotopes, building and placement of bird nesting boxes (e.g. in Türkenschanz Park) with consideration for species that breed in semi-hollow and hollow nests, mulching of wood chips to improve conditions for soil fauna, leaving fallen trees undisturbed, planting of wild hedges (e.g. in Forsthau Park), leaving of dead wood (e.g. Prater Pötzleinsdorfer-Schloss Park), leaving of tree stumps for stag beetles, building of log crib walls of robinia wood (e.g. Sachsen Park), creation of wintering spaces for hedgehogs, building of semi-natural water courses (Maria-Rekker Park), sowing of flower meadows, collecting of surface water sources into a wetlands biotope (e.g. in Otto-Benesch Park) and building of dry walls (e.g. in Hugo-Wolf Park and Dengler Park), cultivation of butterfly meadows in the Danube Park and creation of city wilderness in Scheu Park and Auer-Welsbach Park. Opening of a wall lizard habitat on Heuberggäßl.

There are roughly 2,000 parks around the city of Vienna. These include 17 historic parks, 13 international gardens, 20 landscape parks, 18 semi-natural parks, 13 parks on former cemeteries and 8 therapeutic parks. In total, the Municipal Department for Parks and Gardens (MA 42) can list almost 45 large recreational areas in Vienna.

The city of Vienna has entrusted a total of 21 associations with the performance of park maintenance / mobile work for young people. The projects take place within the immediate living areas of children and young people, particularly within parks. All projects share the goal of improving the living situation for socially disadvantaged children and young people. Strengthening of their identification with public spaces – such as parks – also contributes to elevating their sense of responsibility. Positive results are observed when children and young people participate in the shaping or redesign of public spaces.

**Butterfly Meadows and City Wilderness**

Ecological retreat areas, “city wilderness”, etc. are permitted when possible. Close cooperation exists in this area with the Municipal Department for Environmental Protection – MA 22, environmental consultants and environmental ombudsmen, for example in the planting of trees as breeding habitat, creation of (wetland) biotopes, building and placement of bird nesting boxes and mulching of wood chips to improve conditions for soil fauna. In addition, wild hedges are planted, dead wood is left on the ground (such as in Prater; 2nd district), springs are collected into wetland biotopes and butterfly meadows are created.

In future, measures such as tree registers and tree care groups will place even greater importance on trees within the city as a climate factor, such as the 100,000 trees that line the streets of Vienna.

The successful campaign to provide up to 2,200 euros to subsidise planting in enclosed (private) courtyards was begun in 1983 and will be continued in 2006. An average of 60 applications are approved in this programme every year. Since 2003, planting on roofs is also subsidised with up to 2,200 euros.

**100,000 Avenue Trees**

In future, trees will enjoy a high priority as a climate factor. All trees in the city should receive a
CHAPTER 5 NATURE IN VIENNA

Vienna Environmental Report

special quality of care in the future. A tree register and specially established tree maintenance groups will simplify this task.

Environmentally Conscious Cultivation

Environmentally friendly cultivation is taking place in the Hirschstetten flower gardens, tree nurseries and the Kagran educational garden: biological pest control, the use of beneficial insects and lure traps take place in close collaboration with “Biohelp”.

Teaching by Example

Special importance is placed on an environmentally oriented education for our gardeners in training and vocational school students in the cultivation operations. This also includes relevant measures such as the reduction of peat substrates, increased use of humus soil as well as cultivation and spreading of rare and endangered wild tree species (e.g. the sorb tree). By opening the operations to the interested public, particularly in Hirschstetten (200,000 visitors in 2005) and Kagran, people have the opportunity to experience nature and environmental awareness first-hand. A school and excursion programme, coordinated with the Vienna (biology) curriculum and EULE, Vienna’s educational program for young environmental professionals, round out the environmentally oriented continuing education offerings.

Roof Greening

In an international comparison, Vienna has a large percentage of wooded area, amounting to 18 percent. Important recreation areas for Vienna’s citizens can be found within the Vienna city region. The Forestry Office follows the principles of semi-natural woodland maintenance in its work in Vienna’s woods. The tree species are selected based on natural local conditions, and the woods are rejuvenated naturally. Woodland is allowed to develop naturally in natural woodland preservation areas.

Beauty Comes from Within

This successful campaign for financial subsidising of planting in enclosed private courtyards (max. 2,200 euros) will be continued again this year. Since 1983, an average of 60 courtyards have been subsidised per year. www.wien.at/amtshelfer/stadtgartenamt/dachbegruenung.html

“Grün beDACHt” (Green Roof) Symposium

In October 2007, MA 22 hosted a symposium with participation by the municipal agencies, experts of the University of Natural Resources and Life Sciences (BOKU) and implementers. The goal of the symposium is to promote the planting of greenery on Vienna’s roofs.

Woods in Vienna

In an international comparison, Vienna has a large percentage of wooded area, amounting to 18 percent. Important recreation areas for Vienna’s citizens can be found within the Vienna city region. The Forestry Office follows the principles of semi-natural woodland maintenance in its work in Vienna’s woods. The tree species are selected based on natural local conditions, and the woods are rejuvenated naturally. Woodland is allowed to develop naturally in natural woodland preservation areas.
Utilisation of the woodlands follows the principle of reduced impact on the natural environs. This means that less wood is harvested than would otherwise be possible. The Forestry Office of the city of Vienna was recognised already in 1995 for its semi-natural woodland management and was included in the list of Greenpeace model operations.

**Facts and Figures About Vienna’s Woodlands**

- 2,390 ha of natural woodland reservations (10 percent of the wooded land of MA 49)
- 221 ha natural woodland reservations in the Vienna region
- 300 ha biosphere park core zones in Vienna
- 8,532 ha of city woods
- 32,471 ha of land in the source protection forests
- 2,500 ha in agricultural use
- Reduced impact utilisation

**Landscaping, Care Measures, Reforestation**

Woods and green areas are planned and created by MA 49 within the scope of multi-year landscaping projects. In the years 2006 and 2007, the programmes “Educational Forest” and “Viennese Children’s Forest” planted over 30,000 m² of new woods in the 21st district as well as 10,000 m² in the 11th district. The creation and landscaping of new green areas is a key component of the city’s environmental policy.

The Vienna Forestry Office also maintains over 120 hectares of agriculturally significant or ecologically valuable meadowlands and numerous natural monuments.

**Expansion of the New Steinhofgründe Recreation Area**

The Vienna Steinhofgründe was once part of the Baumgartner Höhe psychiatric hospital. Toward the end of the 1970s, plans were drawn up for development on the 27 ha grounds. Thanks to a special initiative by the Municipal Department for Environmental Protection - MA 22 and a citizen’s initiative, the planned rezoning of the Steinhofgründe was prevented. In 2007, the recreation area was expended with 15 ha of woodland and meadows. It was necessary to clear overgrown paths in the areas that were previously not publicly accessible, remove and dispose of 1 km of old iron fencing and the associated foundations and collect large quantities of rubbish.

Caretaking measures in the woodland and meadow areas secure the quality of the semi-natural recreation area and its diverse habitats.

**LIFE Bisamberg Habitat Management**

The EU-LIFE nature project Bisamberg Habitat Management is implemented by the office of the Lower Austrian provincial government in cooperation with the city of Vienna and the market town of Langenzersdorf and serves for preservation of the “Bisamberg” cultural landscape established over the course of centuries. Project goals include the restoration of meadows, improvement of the composition of species in the woods and preservation of high-priority species, such as gophers and sagebrush.

**Vienna Woods Biosphere Park**

The Vienna Woods is a valuable natural and cultural region of international significance. These woods are a space for living, business and recreation for around two million people. Lower Austria and Vienna jointly decided in 2002 to nominate the Vienna Woods as a biosphere park. In 2005, the biosphere park was recognised by UNESCO.

Biosphere parks (internationally known as biosphere reserves) are regions that are recognised according to international criteria within the framework of the UNESCO programme “Man and the Biosphere” (MAB). The goals are protection of ecosystems and landscapes, preservation of biological and cultural...
diversity, sustainable land use and support for research and educational activities.

Biosphere parks have 3 zones:

Core zones: In these areas, the woods develop without the influence of humans. In 2007, over 300 hectares of core zones were contractually secured in agreements with four property owners in Vienna.

Buffer zones: For preservation of the valuable cultural landscapes that depend on agricultural use, such as meadows, fields and vineyards.

Transition zone: Space for the population to live, conduct business and engage in recreation with the goal of development that satisfies the needs of humans and nature.

Simultaneous with the granting of legal protection to the biosphere park in 2006/07, the Vienna Woods Biosphere Park Management started projects for promoting the regional economy, nature conservation, recreation infrastructure, visitor information and sustainable wildlife use.

www.biosphaerenpark-wienerwald.org

“Landgut Wien Cobenzl”

The Landgut Wien Cobenzl is a project of MA 49 within the framework of EULE, the environmental education programme of the city of Vienna. Children, young people and adults have the opportunity here to playfully learn about living and working on a farm as well as about organic agriculture and species-appropriate animal husbandry.

Roughly 100 farm animals live on an area of four hectares: sheep, goats, pigs, ponies, cattle, rabbits, chickens, geese, ducks and turkeys can be observed, fed and handled.

The Landgut Wien Cobenzl received over 50,000 visitors in 2007.

www.landgutcobenzl.at

wien-Lobau National Park

In May 2007, the “wien-lobAU National Park House” built by MA 49 and co-financed by the EU was opened for the over 650,000 visitors who come to Lobau every year.

During the first season, roughly 18,000 visitors took advantage of the wide range of opportunities offered. The interactive exhibit “tonAU” offers an auditory experience of the wetland diversity. The multimedia presentation “The River of Time” shows the unique features of Lobau with impressive images.

The wien-lobAU National Park House is easily accessible by public transport or by bicycle, and more information can be found in the Internet at www.nph-lobau.wien.at.

Guided Woodland Tours and “Vienna Woodland Schools”

Under the title “Woodland Education”, the city of Vienna promotes understanding of woodlands and the natural relationships in the environment. For many years, the Forestry Office has offered guided tours on environmental topics to children and young people as well as interested adults. Worthy of particular mention are the Vienna woodland schools of Ottakring and Lobau, the “wien-lobAU National Park House”, the Lobau National Park Camp and the guided tours offered at the Lainzer Tiergarten.

www.landgutcobenzl.at
Almost 200 km² or roughly 50% of the city’s land area is adorned with bushes, covered with meadows and shaded by trees. The most significant green areas are found in the city’s green belt, home gardens, recreation and sports areas, parks, small gardens and green-lined residential complexes. With respect to district land areas, the districts 1, 4 and 9 exhibit little greenery, while the shares of green space in the districts 13, 14, 17 and 19 lie between 60% and over 80%.

The planting of greenery in enclosed courtyards makes a significant contribution to providing the population with a “green experience” in every day life, particularly in densely developed areas. For example, such courtyards represent over 70% of the total green area in the 8th district.

Equally important is the green space found in the city’s parks.

Instruments for Securing Green Space

The most important instruments for securing green space are appropriate zoning as well as...
landscaping or the purchase of land for this purpose. Through ongoing revision of the zoning and development plan, the regions designated in the “Green Belt 1995” programme as “Priority Landscape Land” are continuously and systematically secured through corresponding zoning primarily as protected green belt areas. Particularly valuable regions for protection of species and habitat are designated as protected areas of various categories according to the Vienna Nature Preservation Act.

The city of Vienna (MA 69 – Real Estate Management) purchased a total of 1,310,000 m² of green land in 2004. This included 1,200,000 m² of woodlands as well as 320 ha of land for source protection purposes outside of Vienna. For creation of the necessary infrastructure in the Nordbahnhof urban development region, 29,000 m² was purchased for creation of a park area. In addition, 5,000 m² was purchased in the 21st district for realisation of the high-level landscape and open space concept for northeast Vienna. Another roughly 4,700 m² was purchased for expansion of the Liesingbach, making a significant contribution toward implementing the revitalisation concept of the Municipal Department for Water Engineering (MA 45) for altering the course of the Liesing stream.

Green land purchases in a magnitude of roughly 30,500 m² took place in 2005. These included, for example, roughly 9,000 m² for realisation of the high-level landscape and open space concept for northeast Vienna in the 21st district as well as about 9,500 m² for expanding the borders of land in the 21st and 19th districts already owned by the city of Vienna. Additional property purchases amounting to approx. 1,500 m² were also made by MA 69 in 2005 for revitalisation of the Liesingbach.

Eco-Check from the Air

Biotope monitoring is a valuable tool in green space planning as well as for evaluating the status of Vienna’s green areas. To this end, the entire city region is regularly photographed from the air with infrared film. This makes it possible to identify how much greenery exists and where it is located as well as the health of Vienna’s trees and bushes. In addition, the data collected in flyovers during the years 1991, 1997, 2000 and 2005 allows accurate assessments of changes in Vienna’s green areas.

The information obtained through the biotope monitoring represents one of the most detailed sets of data available to any major city in Europe. With the biotope monitoring, the Environmental Unit promotes the observation of natural spaces and establishes a key foundation for protection and preservation of green spaces and open areas as well as securing of quality of life and health in Vienna. Green space developments in Vienna continue to be carefully tracked through evaluation and analysis of the aerial images obtained in the photographic flight in August 2005.

No Risk to Vienna’s Soil

The goal of the “Vienna Soil Study” performed every three years by the Municipal Department of Environmental Protection – MA 22 is to permit conclusions regarding the condition of the top layer of soil across wide areas of Vienna and to observe long-term trends in contaminant concentrations. The study is therefore an important element of preventive environmental protection.

On one hand, the information obtained should reveal the impacts of changed conditions (e.g. lead ban in automotive fuels, increase of automobile traffic) on the environment and on the soil in particular in order to enable the city administration to respond to these consequences within the scope of its legal authority. On the other hand, the data also serves as a knowledge base for the work by experts in various agencies of the city administration.

Sampling

For reasons of continuity, the same sampling points used in previous years were selected again for the recently performed fifth study. The sampling points were selected with the aim of covering all areas in question (parks, residential areas, streets, etc.) for each of the 23 districts of Vienna. Analysis of the soil samples takes place using state-of-the-art equipment at the laboratory of the Environmental Analysis Unit of the Municipal Department for Environmental Protection – MA 22. All quality assurance measures in accordance with the currently amended versions of the pertinent national and international standards were also implemented.

Summary

With the exception of the consequences of lead emissions occurring in the past due to road traffic as well as washing out and erosion of asphalt surfaces that drain directly into unpaved ground, this study could not identify any sources of current contamination of Vienna’s soil with heavy metals or PACs.
CHAPTER 5 NATURE IN VIENNA

Space to live

Vienna grows, is renovated and improves its infrastructure. Amidst these processes, it becomes increasingly difficult to provide space for the plants that also represent habitat for wildlife. Above ground, pedestrians, cyclists, users of public transport, parking space seekers and drivers compete for every square metre of road surface; and below ground, sewers, water lines, gas lines, power and telecommunications cables compete for the space that could be used by the roots of Vienna’s trees.

For these reasons, the Municipal Department for Environmental Protection is particularly dedicated to helping establish an ecological balance by sharing knowledge in the form of our planning manual, which we provide to planners, project developers and decision-makers as a reference work to encourage them to make more habitat available to plants and animals. This collection of information, advice and recommendations is intended as a guide to how and where specific plants can be used correctly. It offers suggestions on how we can make our city more attractive with trees, bushes, grasses, shrubs, flowers, ornamental plants and “gap vegetation”, how the extent of paved surfaces can be reduced and how the diversity of nature can be given more space in accordance with natural laws and principles.

Environmental Interests

Many agencies implement land-related measures through planning, projects, property transactions, etc. Consideration must be given to the interests of the environment in such processes. Many environmental interests can be addressed through legal designations, such as:

- National parks, landscape protection areas, nature protection areas and natural monuments.
- Many areas also exist for which MA 22 has formulated goals for preservation and/or improvement of the environment and acts to ensure that these are taken into consideration in the implementation of plans. For example: green connections, linking of biotopes.
- For this reason, we have laid out our goals and projects in plans and descriptions.
- In this way, we offer agencies within and outside of the city administration as well as planners a basis for understanding where particular environmental interests of the city of Vienna should be taken into consideration. By making this information easily available, we hope to help simplify the daily work of these parties.

Landscape Care in the Danube Bayous of Prater

Cooperation between Municipal Department 22, Municipal Department 42 and “flexwork” within the framework of the project “Landscape Care in the old branches of the Danube at the Prater (Lusthauswasser/Mauthnerwasser Area)”

Prater is a landscape protection area and, in some places, also a wide-area natural monument. The goal of this protected status is to preserve the typical structural of a meadow landscape, specifically the mosaic of water and land areas. Typical tree species, such as white poplar, require what is known as raw soil plus extensive light in order to spread naturally.

Until the first Danube regulation project in 1869, sidearms of the Danube flowed through Prater. Sections of river bank and dead wood were carried away during floods, resulting in the raw soil. Today, the bayous in Prater are no longer exposed to flows of river water; instead, they are only filled by rising ground water and have become standing bodies of water. The end stage is complete loss of such bodies of water as well as the animal species that depend on open water.

The Prater Ordinance (landscape protection area) as well as the more detailed resolution for the Mauthnerwasser natural monument established the goal of preserving the open bodies of water in Prater, but in order to achieve this, it is necessary to recreate through artificial means the function of washing out trees that is no longer performed by flooding. The Municipal Department for Environmental Protection – MA 22, in cooperation with the Municipal Department for Parks and Gardens (MA 42), has implemented an initial project to accomplish this in a small portion of the Mauthnerwasser. To minimise disruptions of this habitat as far as possible, no digging machinery was used to remove these giant trees. Instead, the dead trees were sawed up and carried out by hand by workers from “flexwork - work force for the common good” - (a company of the Vienna Workers Support Fund - WAFF). As such, this is a social project, in which meaningful employment can be offered to persons who have long been unemployed.
“The extension of the wastewater treatment plant and its positive effects on the water quality of the Danube was a milestone in the protection of waterbodies.”

EBS (Operator of Vienna Wastewater Treatment)

“By optimising domestic technical systems, we were able to halve the power consumption for heating and reduce water usage by two thirds.”

MA 44 Public Baths

“Thanks to comprehensive water resources management and ecological measures, the water quality of the Old Danube is superb and the visibility is excellent”

MA 45 Water Engineering
Vienna’s wastewater treatment plant has been extended by a second biological treatment stage that has been operative since summer 2005. The extended wastewater treatment plant is an integral part of the water protection programme in Vienna. Along with the increase in the clarification output for carbon to 98%, the extension allows for a biological clarification of nitrogen with an efficiency of more than 80%. In this way, compliance with the minimum efficiencies specified in the emission regulations and with the emission limits is ensured.

The wastewater treatment plant is designed for 4 million population equivalents, during stormy weather conditions a maximum of 18 m³/s of wastewater can be handled. Over the course of one year, a wastewater volume of approx. 200 million m³ is purified in accordance with current technological standards and is fed into the Danube channel. The sludge of approx. 69,000 tonnes resulting thereof is supplied to the combustion plant for thermal disposal.

The effects of the extended wastewater treatment plant on the water quality of the Danube are very positive. In the measurement station at Mannswörth, situated 5 km downstream of the sewage treatment plant, a significant reduction of ammonium has been registered since the second biological treatment stage was put into operation. A comparison with the measurement station at Nussdorf, upstream of Vienna, shows that the water quality of the Danube does not suffer as a result of the clarified wastewaters of the now extended main clarification plant for the 1.7 million inhabitants of Vienna - the Danube leaves Vienna with the same quality it has when it enters the city. By extending Vienna’s main clarification plant, EBS (Operator of the Vienna Wastewater Treatment) has set a milestone for the water protection of the Danube.

The voluntary implementation of an integrated management system (IMS) – up to now the first clarification plant in Austria to do so – and the certification of the same in 2007 ensure that all activities related to wastewater clarification comply with the international quality standards regarding the management of a company (ISO 9001), sustainable environmental protection due to reduction of environmental effects (EMAS respectively ISO 14001) and occupational safety (OHSAS 18001).

Objectives have been specified in the environmental management system for the relevant environmental aspects and these have been implemented by corresponding measures. Optimisations in the field of process technology have resulted in savings of 6.6% as regards energy consumption. The maintenance has reduced the lubricant consumption by 30%, while 130,000 m³ have been saved in the area of ground-water consumption (that is 13%).

The replacement of the turbine in the drain-
Public baths are the most important recreational facilities of the city; nearly all inhabitants relate unforgettable memories from their youth and mostly even from later points in life to experiences at public baths. In order to operate the baths, high expenditures are required - first and foremost for energy and water. Thus there is the necessity of using the available means economically.

In past years, achieving savings on the basis of energy savings contracting agreements has proved to be a good option. The first contracting project of the MA 44 - Public Baths was the indoor and outdoor swimming pools in Simmering in 2000.

On the basis of this success, energy savings contracting agreements have been concluded for 9 municipal baths up until now, while for a further bath the awarding procedure is still open.

On the basis of these contracting agreements, measures to optimise existing building technology facilities, among other things, have been implemented. Furthermore, building technology components have been renewed, heat recovery systems and solar systems have been installed, and water treatment systems (swimming pool filters) have been modernised.

By means of the contracting measures, the heating energy consumption has been reduced by half, while improving the comfort, and the water consumption has been reduced by two thirds, while improving the water quality. The required investments (approx. € 18 million) are provided by targeted savings which amount to approx. € 2.4 million annually (expenses excl. turnover tax).

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### Summer, sun

**Open-air bath**

The contracting projects of the MA 44 - Public Baths have also received international attention: For example, the contracting project for the indoor swimming pool in Brigittenau was awarded with the "European Energy Service Award 2007" in November 2007 in Brussels.

#### Contracting MA 44, guaranteed values

| TOTAL | PROJECT COSTS | € 1,664,865 |
| SAVINGS | € 201,342 |
| AMORTISATION TIME | 8.27 years |
| REPAYMENT (201,342 x 8.27) | € 1,664,865 |
| SAVINGS ON USEFUL LIFE: | € 2,361,742 |

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View into one of the 15 final clarification tanks
CHAPTER 6 LET THE WATER FLOW

Surface waters and ground water

Maintenance and restoration of the water quality Prevention and renovation

The legally specified measures to maintain and restore the water quality, the water monitoring, and the water status monitoring measures, as well as the collection of the hydrological basics have been implemented.

Revitalisation of streams and rivers

The renaturation of the Wien river in the area of the retention tanks at Auhof and the confluence areas of the Rotwassergraben and the Grünauer Bach with the Wien river were completed and revitalised until 2006/2007. The same is true for the Mauerbauch - from the Laudonbrücke to the confluence with the Wien river - as well as the Lainzerbach - in the section downstream of the Lainzer Teich up to the Glawischnigweg. The revitalisation comprised a section of 100 m for the Alsbach, in the area of the Hanslteich, and 200 m for the Petersbach, in the area of the Wildagasse. In doing so, a significant improvement of the flood protection has been achieved.

Liesingbach

In 2006, the Liesingbach was revitalised from the city border at Kledering up to the clarification plant at Blumental. Furthermore, comprehensive revitalisation measures were implemented in the retention tank in the area of the Willergasse. The renaturation measures were possible on the basis of the establishment of the Liesingtal collection relief channel in the course of the Liesingbach. The hard ground has been removed, the banks have been extended, and the ground support has been replaced by soft ground sills over which fish can pass.
Vienerwaldstausee
In 2007 the MA 45 took over the Wienerwaldstausee as flood retention tank. Comprehensive construction works such as the increase and the renovation of the dam have been implemented. In the left bank area – upstream of the dam – an old brick wall could be removed and in the course of the same a hibernation place for the strictly protected dice snake could be designed that lives in this area. Quarry stones, stools, and sand could be used to build piles and water-near structures. In the area of the tributary to the Wienerwaldstausee, downstream of Tullnerbach, a second ditch has been dug into the silted area, which ensures another tributary to the Wienerwaldstausee from Mittelwasser. In order to not to disturb or influence the animals living there - mostly beavers - and the territorial relations of the same, the course of the ditch had to be selected extremely carefully and ecological conditions had to be taken into account. The task was to design lakes and pools and to excavate small bank scars in order to design breeding areas for kingfishers and to vary the width of the river strongly. Already in summer 2007 the river had been integrated completely into nature.

Renovation Unteres Heustadelwasser
Along with a strong haze and an ugly green colour caused by algae flowers during the summer, the shallow water body and significant lacks of oxygen repeatedly resulted in dying fish and people complaining in the winter months with ice cover. The MA 45 implemented a long-term water-ecological monitoring programme to obtain a basis for the development of a renovation project. The finally selected procedure "Neptunanlage" basically consists of a floor filter in combination with a phosphor filter in the return to reduce the contents of nutrients and particulate material. In 2007 this system has been built by MA 45 and commissioned successfully. In 2007 the ongoing monitoring results showed a significant improvement of the water quality in the lower Heustadelwasser.

Brownfields
At the end of 2007, the renovation of the brownfields Gaswerk Leopoldau and Zentraltanklager Lobau nearly had been and of the brownfield Shell Pilzgasse had been completed. Thus, Vienna already secured or renovated all war brownfields.

Measurements in the Danube area
Water networking in the Lobau
The continuation of the dotation of the Lobau with water from the new (respectively old) Danube from the Obere Lobau to an extent of maximum 1,500 litres per second into the Untere Lobau has been prepared by submitting a water-economic test with the water rights authority.

Within the framework of the development of the submission documents, numerous ecological tests for the approval of the test from the nature protection and national park rights point of view in the Lobau have been implemented (e.g. studies on the distribution of the animal and plant species). The water networking measures also have been continued in 2006/2007.

Old Danube
On the basis of comprehensive water-economic and ecological measures, an extraordinary water quality of the Old Danube could be achieved, with sight depths extreme for rivers like the Danube.
"Over the last years the exposure of the air in Vienna due to sulphur dioxide (SO₂) has been reduced significantly on the basis of different measures such as the extension of the district heating network or the use of modern exhaust gas treatment procedures in the industry." –

"The Urban Air Initiative is a comprehensive package of measures that will help to safe the quality of the air in Vienna on a continuous basis and to continue to improve the same." – Municipal Department of Environmental Protection – MA 22

"With its modern flue gas purification plant our listed crematorium building will contribute to the environmental role model city Vienna." – Cemeteries of Vienna
Air quality in Vienna

On the basis of long-term and targeted measures partially high emission reductions could be achieved during the last two decades. This resulted in a substantially improved air quality in Vienna and its surrounding area. However, air pollution remains a serious problem - not least due to the strong increase in traffic volume.

Specifications on the basis of the Pollution Protection Act - Air

Solutions for particulate matters, NO₂ and ozone

In order to meet a corresponding EU directive, the Pollution Protection Act - Air (IG-L) has been enacted, which specifies generally applicable pollution limits. The IG-L specifies that, along with the hitherto measured components sulphur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), particulate matter PM10 (particles up to a diameter of 10 micrometres), and ozone (O₃), the toxic components in the particulate matter and in the benzene are to be detected as well. Additionally, deposit measurements for dust deposits, as well as for the pollutants lead and cadmium contained therein are to be implemented. As of 2007, monitoring the components arsenic, cadmium, nickel, and benzopyrene has been specified for the PM10 as well. At the moment, there are only target values for these particulate matter components, which however will be converted into limits as of 2013. As the amended range of the IG-L also defines alarm limits for sulphur dioxide and nitrogen dioxide, the hitherto applicable smog alarm act has been repealed. On the basis of the results of IG-L measurements of several years there are locations of high exposures regarding the pollutants particulate matter (PM10), NO₂, and ozone in Vienna, Austria. The currently applicable human hygienic limits for the remaining toxic components are met and largely even fallen below substantially.

Status survey in case of exceeding the limits

Cases of exceeding the pollution limits specified in the IG-L are documented in monthly and annual reports. If exceeding the limits cannot be attributed to a failure or a temporary, non-recurring exposure, a status survey has to be implemented describing the pollution and emission situation, as well as the meteorological conditions.

Furthermore, it has to be determined which concrete renovation measures are to be implemented in which area. By means of a decree a catalogue containing emission-reducing measures for the renovation area may be enacted. As possible measures, for example emission limitations for operating plants, traffic limitations, or restrictions regarding the use and the production of certain substances may be specified. Regarding exceedances since 2005, a so called “programme” has to be developed, which additionally shall contain measures that may be implemented in the own sphere of action of the countries.

Air measurement network

The condition of the air in Vienna is monitored continuously by an area-wide pollution measurement network with 17 stationary air measurement locations all over Vienna and a mobile air measurement vehicle. Nearly all measurement locations are located in modern measurement containers. Partially even locations exposed to traffic have been selected as installation sites allowing for a description of the air situation even in these particularly critical areas.

Where what is measured

All measurement locations are equipped with measurement devices for nitrogen oxides. Additionally, sulphur dioxide is measured at ten measurement locations and carbon monoxide at four measurement locations. At two of the measurement locations exposed to traffic the benzene values are registered on a regular basis. Five locations have been equipped with their own ozone measurement devices. Since the beginning of 2005 the PM10 concentration is monitored at thirteen and the PM2.5 exposure at two measurement locations. At two further measurement locations (Laaer Wald and East motorway) lead and cadmium are determined in the dust deposit additionally. Furthermore, as of 2007 there will be a chemical analysis of the particulate matter samples regarding heavy metals and benzopyrene at two locations. Meteorological sensors detect wind speed, wind direction, air temperature, air pressure, and relative humidity at suitable locations.

EU-compatible data collection

The air samples are sucked in a EU- and IG-L-compliant manner in order to be able to comment on the air quality in all areas the urban
population may stay in. This procedure allows for the data to be compared in a pan-European manner, and not only within Austria. In order to control the prevention of air pollution a proprietary environmental measurement vehicle is used, which is designed for mobile pollution measurements of the toxic components sulphur dioxide, nitrogen oxides, PM10, carbon monoxide, and ozone. The measurement vehicle - alike the remaining 17 stationary air measurement locations - is monitored by a central computer and transmits the data 24 hours a day directly into the control centre of the Municipal Department of Environmental protection – MA 22.

Modifications in the monitoring of pollutants

The extension of the particulate matter measurements initiated in 2002 was finished in 2004. Since 2005 the particulate matter measurement network is in complete assembly. Minor amendments are only designed for PM2.5 at the moment.

However, the air measurement network of Vienna has to be adapted to new legal and technical requirements on a continuous basis. New measurement containers have to be erected at two locations. The measurement location Taborstraße has been renewed in order to allow for the particulate matter fractions PM10 and PM2.5 being measured at this location. The erection of a supermarket at the old measurement location "Stadlau" required the new development at a location nearby.

Air pollution balance 2006–2007

The air quality in Vienna is mainly affected by toxic emissions from the combustion of fossil energy sources, from the vehicle traffic, and from emissions from commerce and industry. On the basis of the geographic and climate circumstances, but also due to a very low share of industrial areas with high levels of pollution, there are very favourable basic conditions in Vienna in principle.

However, emissions for example of nitrogen oxides and particulate matter, still affect the air quality in Vienna. Apart from its own emissions, Vienna as an area of high population density now and again is exposed to large distance toxic transports from Poland, the Czech Republic, Slovakia, and Hungary. Creation of ozone near the ground level affects air quality as well.

Strong reduction of $\text{SO}_2$ in the last decades

Since the 70ies a substantial reduction of the exposure towards pollution could be observed in Vienna, Austria. The reduction until the beginning of the 90ies can be attributed to substantial reductions of the sulphur dioxide ($\text{SO}_2$) emissions both in Vienna and in Austria as a whole (flue gas purification plant, changeover to natural gas in the field of combustibles, step-by-step reduction of the sulphur content in combustibles, reduction of building fire emissions by extending the district heating system).

There is a strong connection between sulphur dioxide pollutions and weather influences. Thus, wide-area increased episodes always occur in winter times, with long-lasting cold high pressure weather conditions. In the conditions mentioned above $\text{SO}_2$ may also be transported over large distances.

Thus, the reduction of the $\text{SO}_2$ emissions beginning at the end of the 90ies in the neighbouring states of Austria to the north and to the east resulted in a further reduction of the measured sulphur dioxide exposure in Vienna as well. In the summer the measurement results are so low that they barely exceed the detection limit of the measurement devices.
Particulate matter - PM10

The particulate matter component PM10 has been measured since 2002. The limit of 40 micrograms per cubic metre shown to be the annual average value has been complied with in 2006 and 2007 at all four measurement locations in Vienna. A limit of 50 micrograms per cubic metre of air also has been defined for the daily average value, at which this limit may be exceeded on up to 30 days per year. Alike in many European areas with high population densities, exceedances of this limit for daily average values are monitored in Vienna as well.

On the basis of the relatively short detection period of six years and the strong dependency on the weather during the winter, comments on the trend of the PM10 pollutant development in the urban area of Vienna are very difficult at the moment. Compared to the results obtained hitherto, 2004 and 2007 were years of low exposure levels. During the course of a year the highest concentrations normally occur during the winter months. In this season the transport of pollutants over large distances, as well as frequent temperature inversions adding to a poor dilution of the pollutants caused the majority of limit exceedances.

As a contribution to reduce the particulate matter exposure in the urban area, all vehicles of the city of Vienna driven by a diesel motor were retrofitted with diesel particulate filters in 2005, if this was possible from a technical point of view. Furthermore, the use of the humid salt technology has been fostered in recent years in winter weather service. In doing so, it was possible to save substantial amounts of winter road sand that otherwise would have led to an increased formation of dust.

Main factors for high PM10 values

Present surveys showed that the most important source of particulate matter in Vienna are emissions of the road traffic (e.g. raising road dust, exhaust fumes, and tyre, brake, and road particles). In certain areas emissions from commerce and industry, as well as raising dust in case of soft road surfaces contribute to the aforementioned as well. An additional source for the formation of particulate matter are gaseous precursor substances such as nitrogen oxides, sulphur dioxide, and ammonia transported large distances (500km and more).

Thus, it is not only regional sources contributing to the particulate matter exposure, but supra-regional sources as well. The contribution of these supra-regional sources that cannot be identified in more detail to the pollution

**Schweifeldioxid-Konzentrationen in Wien**

**Stickstoffdioxid-Konzentrationen in Wien**

**Lokale, nationale und internationale Beiträge PM10-Belastung in Wien**
exposure in Vienna is approximately 75%. Thus, the emissions in Vienna are responsible for 25% of the pollution exposure on average, at which these emissions may be divided as shown in the representation "PM10 emissions in Vienna [%]".

**NOx main pollutant**
Along with their direct effects as air pollutants, nitrogen oxides are precursor substances for ozone and particulate matter. In Vienna, the road traffic is the main cause of nitrogen dioxide emissions, taking a share of 60 percent. This has been confirmed by the "NO2 status survey" published in spring 2005 (in the internet at: www.wien.at/ma22/luft/pdf/iglstatus2003-no2.pdf).

There are many aspects indicating that the nitrogen dioxide concentration depends on weather conditions and air temperature. Low temperatures in combination with temperature inversions result in the exposure of the NO2 increasing during the winter months. However, exposure peaks can also occur in the summer on the basis of the interactions of traffic exhaust fumes and ozone.

At measurement locations near road traffic an increase in the NO2 exposure could be monitored during recent years. One reason for the aforementioned is the increasing share of modern diesel vehicles that are characterised by reduced particle emissions, but a substantially higher share of NO2 in the flue gas at the same time.

**Often an issue in the summer: ozone (O3)**
Ozone at ground level is not emitted directly. In case of high-pressure, summer weather – at high temperatures, no wind, and dry air – this pollutant mainly results from nitrogen oxides and hydrocarbons. The majority of the precursor substances for ozone formation stems from emissions caused by road traffic, but also from other industrial, commercial, and domestic combustion processes.

In corresponding weather conditions the "information limit" has been reached in recent years on several days. As the ozone exposure strongly depends on the weather conditions trend comments are difficult. In this, the annual average values for ozone correlate relatively well with the annual average of the air temperature. However, the increased ozone exposure cannot be explained alone by the aforementioned.

**Triggering of ozone alarms**
The ozone exposure for the years 2006 and 2007 resulted in the "information limit" being triggered on approx. 20 days – and even in short triggering processes of the "alarm limit" on individual days.

**Ozone forecast model**
Within the framework of the ozone legal network, the city of Vienna has been working intensively with the countries of Lower Austria and the Burgenland for a long time to develop measures to reduce the ozone exposure in the Pannonian Region. However, in order to actually avoid ozone peaks measures have to be set one or two days in advance. Thus, Vienna is working on an ozone forecast model that currently is tested and improved further. The model system to forecast ozone on the basis of the operational regional weather forecast has been developed within the framework of a cooperation of the Central Institute for Meteorology and Geodynamics (ZAMG) with the Institute for Meteorology of the University of Natural Resources and Applied Life Sciences (BOKU-Met) and develops a short-term two-day forecast as regards to the air pollutant exposure in the north-eastern part of Austria.
All ozone alarm reports since 1 July 2003 can be found in the internet at the following link: www.wien.at/ma22/luftgwe.html

Air quality information Vienna: Folder, brochures, hotlines, links:
- to request brochures as well as make requests: Environmental hotline, Tel.: 4000/8022
- audiotape service "Ozonix" – hourly updated air quality information 24 hours a day, Tel.: 4000/8820
- current air quality, daily, monthly, and annual reports, status surveys, Ozone warning service and ozone alarm reports at www.wien.at/ma22/luftgwe.html
- air quality information from all parts of Austria: www.umweltbundesamt.at/umweltschutz/luft Further information also available on ORF television teletext, page 782, on the cable information channels, as well as in the cable network.

Vienna Urban air initiative

On the one hand, a largely good situation could be achieved as regards to air pollutants or carbon monoxide due to the committed environmental strategy of recent years. On the other hand, there has been an increase as regards to the exceedances of the limits for the pollutants nitrogen dioxide and particulate matter over recent years. These exceedances result from both the local emissions in the metropolitan area of Vienna and from the regional and supra-regional large distance transports. In this, the main sources basically are the sectors road traffic, generation of room heat, and the industrial and commercial sector. In case of some pollutants, such as PM10, the supra-regional shares due to large distance transports constitute the majority of the background exposure.

Already years ago, the Municipal Department of Environmental Protection initiated the establishment of an air quality measurement system. Causes and effects of air pollutants are to be inspected and measures to improve the air situation are to be taken. The Urbane Luft Initiative Wien (Vienna Urban Air Initiative - ULI) is a corresponding programme on administrative level that has been enacted in 2005 by the city councillors Ulli Sima and Rudolf Schicker under project-management of the Municipal Department of Environmental Protection. The responsible persons expect the implementation of the ULI Vienna to make a significant contribution to the reduction of the toxic emissions and thus to the compliance with the "air quality limits". In total, the long-term aim is to achieve an improvement regarding the air quality situation in Vienna and in the surrounding area.

ULI Vienna combines the expert opinions of specialists from the most different fields. These people jointly develop measures and present the same for decision-making to the responsible political committee. Furthermore, ULI Vienna is an information centre ensuring the exchange of information between administrative authorities, lobbies, and science. Important results of ULI Vienna are catalogues of measures in accordance with the Pollution Protection Act - Air and the air strategy of Vienna.

Modern flue gas purification plant in the crematorium Simmering

Installation of a flue gas purification plant in the crematorium Simmering, Austria

The MA 43 - Department for Urban Cemeteries (since January 2008, "Cemeteries of Vienna") is the operator of a more than 20 years old crematorium in Vienna Simmering. The existing system is located in a historically valuable building and is under preservation order. The cremation system consists of a total of four electronic furnaces.

A crematorium is a form of sepulture in the meaning of the Sepulture Act of Vienna and may not be used to burn waste in the classic sense. The official approval for the modification of the
septulture system in accordance with the Body and Sepulture Act of Vienna has been issued by the MA 15 - Department for Health Care and Social Issues. Along with numerous special departments, it was the Municipal Department of Environmental Protection – MA 22 which was integrated into the official procedure significantly.

The objective of the structural measures is to improve the environmental standard of the existing system in a significant manner and furthermore to use the heat by means of a heat recovery plant. As there are no corresponding Austrian laws, the 27th Federal Emission Control Ordinance and the VDI 3891 (Association of German Engineers) were used. Amongst others these regulations specify limits regarding dioxins and furans (0.1ng/m³), dust (10mg/m³), CO (50mg/m³), Corg (20mg/m³), as well as Hg (0.5mg/m³). Regarding the exhaust emissions both hourly and daily average values have to be complied with.

On the basis of the existing spatial conditions, a drifting stream process has been selected as purification process. In this, an additive is inserted into the flue gas upstream of the filter in a continuous manner. Pollutants from the flue gas attach to these particles. In the filter dust and particles are separated together afterwards. This is a dynamic system, which requires continuous dosing. In accordance with the filtering principle the exhaust gas is pulled through textile fabric hoses. The dust particles attached to the other pollutants in condensed state are separated at the meshes of the fabric. The formation of a filter cake related to the aforementioned increases the separation performance in addition.

The heat exchangers required for the flue gas purification plant are located outdoors and supplied by means of media lines routed through the soil.

The waste heat obtained from the crematorium is supplied into the existing heating system of the fire hall with the help of an hydraulic guide. The connection is implemented directly to the heating manifold in the control room of the fire hall.

By establishing the new flue gas purification plant - with planned project completion and commissioning as of September 2008 - Cemeteries of Vienna contributes to the city of Vienna living up to its reputation of being a role model city as regards to environmental aspects.

For example the Central Cemetery in Vienna is not only a place where the dead find rest. The park with impressive biota is a place to relax and reflect. Its overall area is 2.5 million square metres and thus it is the second largest cemetery in Europe. Numerous protected animal species call this park their habitat.

Important results and further plans

As important partial results 2 comprehensive packages of measures to reduce the local particulate matter and nitrogen dioxide emissions already have been enacted and implemented. These activities have been accompanied by comprehensive informational efforts to form an awareness. On the basis of the exceedances at measurement stations near road traffic sites, the next step is to develop a measure programme for nitrogen dioxide (NO₂) until June 2008. This is to reduce the likelihood of exceeding the short-term limit for NO₂ significantly.

Building on the aforementioned an air strategy is to be developed for Vienna, with broad participation and high acceptance. The aim of this middle- and long-term planning is to avoid, as far as possible, the adverse effects of air contamination on human health and on ecosystems, and to enforce the position of the region of Vienna as an important economic location. In total, this is to find a balance between regulations and pulses, between limiting and supporting measures, as well as between the dynamics of action and the maintenance of qualities.
"In 2006 and 2007 under our leadership, numerous improvements have been made for pedestrians, including the widening of footpaths, crossing improvements and improved lighting." –
City of Vienna Council Department, Buildings and Technology Town Construction Department, Section 1, General and EU Matters, technical specialist supervision

The absolute aim of the Climate Protection Programme (KliP), avoiding 2.6 million tonnes of CO₂ equivalents, was already achieved in 2006. –
City of Vienna Council Department - Climate Protection coordination

The Schukowitzgasse Nursery project meets the requirements of a low energy building and can also be called an energy saving building –
MA 34 Construction and building management

Our new Town Town location was built using the most modern energy efficiency principles –
MA 40 Social matters, social and health law
The City of Vienna started a particularly ambitious and committed environmental programme in 1999 - the Climate Protection Programme (KliP). Its implementation by 2010 should reduce annual greenhouse gas emissions by 2.6 tonnes of CO₂ equivalents compared with the trend scenario and make Vienna an exemplary climate city.

An evaluation carried out in 2006 on implementing the Vienna KliP by the independent Austrian Energy Agency showed the following:

- The absolute aim of the KliP, namely avoiding 2.6 million tonnes of CO₂ equivalents, was already achieved in 2006.
- The greatest successes were achieved in the areas of district heating, increasing efficiency in the power plants, heat insulation for buildings and expanding public transport.
- As a result of numerous opposite trends (e.g. liberalisation of the energy markets in the European Union, rising traffic volume etc.) emissions rose between 1999 (KliP came into force) and today more strongly than forecast at the time. This has made the success relative.
- The implementation of the KliP has had a range of positive economic effects. The experts calculated that the measures from 1999 to 2006 resulted in an investment volume totalling 8.4 billion. The value added effect over this period totals 19 billion. In addition, according to the Energy Agency 42,488 jobs would be secured each year.

In the period from 1990 to the end of 2007 around 158,200 homes were renovated in Vienna.

The 14th International Climate Alliance Annual Conference with high-class climate experts took place 4-6 May 2006 in the Vienna Town Hall. In advance of this conference work started on continuing the Vienna Climate Protection Programme after 2010. Climate protection is also extremely important on a local level - in Vienna especially in the 23 districts. Climate-related actions have been implemented in all districts for years. The following from the individual areas of activity in the KliP from the 2006-2007 reporting period are particularly worth mentioning:

**District heating and electricity generation activity:**

The aims here are to increase the utilisation of fuel in the Vienna power plants and increase the share of renewable energy in producing electricity and district heating.

Important progress has already been made: Fuel utilisation in the Vienna power plants was increased both as an annual average from 60.4% (1996) to 72.1% (2007) and during the heating period from 68.7% (1996) to 77.4% (2007). Vienna is also exemplary when it comes to renewable energy for electricity and district heating: In addition to the existing systems in mid-2006 the biomass power plant in Simmering - Europe’s largest wood biomass power plant - came online producing around 60 MW to supply electricity and district heating. In 2007 Biogas Vienna also came online.

Through the use of modern power-heat coupling technology and natural gas, the lowest emission fossil fuel, it was possible to reduce annual carbon dioxide (CO₂) emissions by around 700,000 tonnes compared with the separate generation of electricity and district heating.
Action area - homes

The subsidised renovation of homes was driven forward. In the period from 1990 to the end of 2007 around 158,200 homes were renovated. This reduces 250,0160 t (CO₂) each year. Around 108,750 t is due to the renovation of around 65,800 homes as part of the “Thewosan” (thermo-energy home renovation) promotion which has been running for a year.

Progress was also made in building new homes, such as the minimum statutory requirements for heat protection for new buildings. In addition, adherence to ecological standards in Vienna is essential to receiving subsidies from the city. All subsidised projects meet the low energy house standard. The mix of energies required for heating and hot water (including air conditioning) for homes was greatly improved in recent years to meet the KliP objectives. The most important measure in this regard is extending district heating. At the end of 2007 around 276,600 homes were connected to the district heating network. This represents annual CO₂ savings of around 1,300,000 t compared with oil power (extra light heating oil). As a result of prohibiting HFCKW, HFKW and FKW in subsidised new homes and as part of the subsidised “Thewosan” thermo-energy home renovation project around 500,000 t CO₂ equivalents were saved per year.

Action area - businesses

The greatest successes were achieved to date by changing the energy source for heating and hot water (including air conditioning). District heating, gas and renewable energies made up around 77% of the final energy consumption of businesses for heating, hot water and air conditioning.

Business premises or parts thereof have also been renovated to include thermal energy. Numerous businesses have undertaken thermal building shell renovation as part of the "Vienna EcoBusinessPlan", the environmental service package for Vienna businesses.

Action area - mobility

According to the 2007 evaluation report by the Austrian Energy Agency on the Vienna Climate Protection Programme the following implementation successes relating to traffic should be emphasised:

- massive expansion and acceleration of public transport
- increasing the efficiency of the railway fleet
- expanding cycle routes
- pedestrian-friendly and barrier-free design of public spaces

The City of Vienna is continuing to consistently encourage public transport, cycling and pedestrian traffic. In 2006 public transport replaced the car as the most popular local transport method with a share of 35%.

Action area - city administration

During the period under review ongoing actions were undertaken to reduce energy consumption in public buildings. The “ÖkoKauf Wien” project set the complete purchase of construction, work and delivery services by the City of Vienna on an ecological footing. Environmental management has been introduced throughout the City of Vienna Council with the environmental management project in City of Vienna official buildings (PUMA).

Additional information on the importance of district heating in climate protection is also found in Chapter 9 (Wien Energie article).
Ecological impulses

1.) Contracting

In the past two years (2006 and 2007) savings contracting in 34 objects of the city of Vienna resulted in an overall reduction of CO₂ of 3326.21 tonnes and energy savings of 18231.4MWh. There follows a brief description of the contract and a project:

2.) Low-energy nursery Schukowitzgasse

The nursery has such features as a facade solar system to produce hot water. An ecological and energy-saving design has been implemented by the construction of this new nursery with six groups. The project meets the requirements of a low energy building and can also be called an energy saving building. Generous heat insulation in the walls emphasises the ecological construction. A recirculating heating system that collects heat was used to heat the building and water is heated using solar collectors. The recirculating heating system has been sized so as to avoid adverse effects from increased air movements.
3.) MA 34 also sets additional ecological impulses in the projects it supports, such as:

- 2007: Installing a photovoltaic system in Building 1, Rathausstraße 9 ("Kontrollamtshaus") as part of its general renovation. 194 modules produce an estimated annual sum of around 10,000-15,000 kWh over 213m².
- The use of 14 water-less urinals in the Town Hall and surrounding area has resulted in a substantial fall in the number of faults as a result of defective water pipes. The savings total around 640,000 litres in spite of its only recent use.
- New office building for the City of Vienna in Vienna 3, Thomas-Klestil-Platz "Town Town" (for MA-L, MA 10, MA 15, MA 40 and MA 6-BA 14) with building ventilation using district cooling.

4.) Energy bookkeeping

Energy books are kept on the various buildings managed by MA 34. These show the energy accounts of the various energy suppliers (district heating, electricity, gas).

The energy consumption in the individual properties can be read from the energy database (called "ENE-Neu") and the right measures to improve the energy used in the building derived by ongoing benchmarking. Energy reports are provided each year for schools, nurseries and official buildings; these show the energy consumed by these properties.

The main task of MA 15 was separating medicine from MA 15 and creating one department for health and another for social matters. This objective was achieved with the MA MED project group created for this purpose and the involvement of the MA 15 employees. Two new service departments have been available to the people of Vienna since 1st October 2007: City of Vienna Health Service MA 15 and Social Matters, Social and Health Law MA 40. A key task was also the final planning of "Town Town", the new location of MA 15 and MA 40 as well as moving the two new departments.

MA 34 and MA 54 were responsible for ensuring that the Town Town construction met the requirements of ÖkoKauf Wien. In addition, a construction biologist supported the project throughout its construction. Town Town has been built to the most up-to-date knowledge of energy efficiency. The ÖkoKauf Wien guidelines were also met for the interior design (such as floors, adhesives and windows).
Gender mainstreaming means institutionalising the term "equality" in the interests of men and women. Planners are required to consider the effects of their work specifically for women and men, differentiated by life phase, cultural background and special needs. The MD Building and Technology section of the City Construction Department has made this an intensive point of focus for traffic for six years.

In traditional transport planning the systematic consideration of pedestrian traffic was not a major issue. This created structural disadvantages and barriers for pedestrians. Children, older people and carers cover large distances on foot near where they live. A gender-specific view of the modal split (transport method) provides useful information: in Vienna 59% of all car journeys are made by men, 60% of pedestrian journeys by women.

As part of the "Gender Mainstreaming Mariahilf Pilot Area" project under the leadership of the MD Construction and Technology Section, the Planning and Construction Section for Everyday and Women’s Needs has made numerous improvements for pedestrian traffic in 2006/2007. The particular challenge of the pilot process was in systematically integrating an extended perspective into the work of those employed in District 6. With the aid of jointly produced planning instruments the gender-specific needs of the various target groups were shown in a targeted way for the planned actions.

Around 1000 metres of walkways were widened during the project and 40 crossing points and 26 illumination projects implemented. At five locations the paths were made barrier-free, one lift was built in a public location, two smaller square designs were implemented and additional seating was provided at nine locations. The "gender perspective" was particularly important in traffic conflict situations that represent day-to-day work for local politicians and planners.

Overall the interests of pedestrians were given a higher value and awakened interest in the new gender planning strategy beyond District 6. Since 2006 the planning and traffic departments have been running gender mainstreaming projects that they select independently. In 2006 and 2007 council departments 28 and 46 handled fourteen projects. It was possible to improve pedestrian traffic for all projects.

One project resulted in some disadvantages for pedestrians in favour of cyclists. Improvements in public transport were achieved in the majority of projects. Gender mainstreaming provides good support for discovering the demands of pedestrians, which are not always obvious at first glance. Securing desired walking routes reduces diversions and therefore risky behaviour. Safe paths promote independent mobility by children and older people and thus reduce the need to be accompanied.

MIV: Motorised individual transport
ÖPNV: Local public transport
"In 2006 the Vienna-Mauer drinking water plant started operations - the 14th plant operated with Vienna’s water" - MA 31 Waterworks

"With more efficient use of energy Vienna will become more competitive - especially as energy prices rise" - MA 27 EU strategy and economic development

"With project to increase energy efficiency and the use of renewable energy Wien Energie and the City of Vienna brings Austria and Europe a step closer to the environmental objectives" - Wien Energie
Vienna's Water

Drinking water
Vienna has been supplied with spring water for 135 years. In normal operation the whole of Vienna is supplied with spring water - only in times of extreme heat and increased water requirements as a result of maintenance work in the high spring pipes is ground water also fed into the pipe network.

Extension of eco-energy by the Vienna Waterworks
The Vienna-Mauer drinking water plant - the 14th plant operated by Vienna Waterworks - started operations in 2006.

With 4,000,000 kilowatt hours in 2007 the expected performance was exceeded by far as a result of the constantly available volume of water. In total the drinking water plants produce 65 million kilowatts of electricity. 15 million kilowatt hours is used by the water supply operation - so the positive energy balance of the Vienna Waterworks is clear. Vienna Waterworks are endeavouring to implement other projects.

For a water supply company resource and environmental protection is a business management principle. In addition, expanding eco-energy is now an economic factor as the energy prices are rising strongly and promoting eco-electricity systems makes this type of energy generation profitable. The construction of another power plant for the 1st high spring pipe should start this year. A power plant project for the north portal of the Schneealpen Tunnel has also been presented for approval.

Reservoir renovation continues, well renovation completed
Vienna Waterworks continues its reservoir renovation and expansion programme with the new construction of the Jubiläumswarte reservoir and the renovation and partial new construction of the Cobenzl reservoir. In both cases the drinking water reservoirs are brought up to the latest technological standard whilst protecting the surrounding wood and meadow belt. The volumes have been expanded, which improves supplies if a crisis occurs.

The Wienerberg water reservoir built in 1873-1889 with a capacity of around 33,000 m³ is a key element in Vienna’s water supplies. In autumn 2007 the associated transport pipes started to be laid and in autumn 2008 the construction activities on the containers will continue. After renovation the reservoir will hold around 41,500 m³.

The programme to renovate the wells around the Lobau Water Plant was completed with the work on the Schüttelau I and Schüttelau II wells. All five wells are available again with increased output after regenerating the drives.

Storm damage in the spring area of the II high spring pipe
In the night of 18/19 January 2007 Hurricane Cyril caused serious wind damage in the spring area of the II high spring pipe. The area around Wildalpen was especially badly affected by this event.

In the protected spring forest areas alone the City of Vienna’s MA 49 Wild Alp Forest Management estimated the total quantity of wood damaged at around 40,000 solid cubic metres - which represents four times the normal annual total. It was necessary to clear up the windfalls as quickly as possible in order to avoid the acute risk of bark-beetle infestation. This was the only way to protect the complete forest and thus Vienna’s drinking water.

As a result of support for the MA 49 City of Vienna Forestry Office and Vienna Waterworks by soldiers from the Austrian army it was possible to remove the damage in the source area, which was difficult to access.

Renovation work on the pipe network
The city’s water network under Vienna’s streets covers 3,284 km. Around 1,000,000 buildings in the city are supplied with drinking water. It goes without saying that the maintenance, repair and renewal of the network and connection pipes has a high value and results in substantial costs for the budget. With the targeted renewal of pipes that are subject to failure (a total of around 57 km) it was possible to reduce water losses and the pipe break rate in 2006 and 2007.
So-called “low-digging” technologies were increasingly used; these not only save costs and reduce construction time, they also reduce the dust and noise pollution for those around the area by digging less and reducing material transport and thus reducing the effects on traffic. Two examples for their use on high-traffic roads are firstly the renewal of a transport pipe in Raxstraße in 2006 (length around 1 km) and secondly Linzer Straße in 2007 (length approx. 1 km) using the PE inline procedure.

It was used again in 2007 to renew the water pipes in Lützowgasse where three different low-digging construction procedures were used in the same road. Here around 1.1 km of pipes were renewed using the commercial pipe inlining, PE inlining and burst lining procedures.

In 2006/2007 the council handled the administration with the customers that was required for producing the pipes. The positive feedback from customers confirmed this procedure.

With the renewal of 2,379 domestic pipes, all lead pipes for which MA 31 is responsible were exchanged. The remaining approx. 180 lead connection lines were exchanged alongside road construction measures and in agreement with the special requirements of the connected home owners.

**Publicity work for sustainable management of resources**

On the occasion of the Danube Day on 29th June 2007, the head of the Waterworks, engineer Hans Sailer, and the general secretary of the Ministry of Agriculture, Forestry, Environment and Water Management Dr. Reinhard Mang laid the first jigsaw stone for the giant jigsaw for the Danube area on Mariahilfer Straße. The jigsaw, which is 6 m x 10 m aims to attract attention and bring the responsibility of everybody for the river into awareness.

MA 31 achieved the excellent value of 1.6 (school grade) in the assessment for overall satisfaction in a representative survey of Vienna Waterworks consumers.

Wien Energie makes a key contribution to maintaining and improving the environmental quality of the City of Vienna. With projects to increase energy efficiency and the use of renewable energy Wien Energie and the City of Vienna brings Austria and Europe a step closer to the environmental objectives. The European Union wants to increase the share of renewable energy to 20%, increase energy efficiency by 20% and reduce greenhouse gas emissions by 20% by 2020. In addition to technological innovations and ground-breaking investments, Wien Energie is focusing its environmental and sustainability policy on active communication with its customers. It has been at the cutting edge of energy advice for decades and uses every opportunity to inform customers about potential savings and alternative forms of energy. The Wien Energie Building in Mariahilfer Straße, which celebrated its 10th anniversary in 2007 and in this time has been visited by more than 700,000 people, is an example of this commitment.
As Austria’s largest energy service provider Wien Energie is aware of its responsibility for climate change and has focused on:

- the rational and economic use of energy
- research and the use of new, economic energy technologies
- protecting the climate, environment and resources
- high security of supply by ongoing optimisation of the generation systems and networks
- maximum efficiency for energy generation and distribution combined with the highest possible quality of advice.

Pioneer with a look to the future

Wien Energie has operated its own water power plants in Opponitz, Gaming and Trumau for decades as well as the Nussdorf water power plant and has preference rights for the Greifenstein and Freudenau Danube power plants. The latter alone can supply over 10,000 households with eco-electricity. The expansion of renewable energy is of key importance to the Wien Energie sustainability strategy. A milestone was set in 2007 with the full commissioning of the forest biomass plant at Simmering. The first wind turbine was used to generate electricity on Danube Island as early as 1997. Since then wind parks have been set up with partners in Unterlaa East and West, Pama-Gols and Zurndorf in Burgenland as well as Rattener Alm in Steiermark. In total energy generated from wind supplies around 14,800 households.

Photovoltaic systems are also used by Wien Energie for environmentally friendly power generation. Systems that use solar power were installed on the roof of the Vienna Natural History Museum and the Vienna International Centre. Since summer 2007 the highest noise protection wall in Vienna, for the Theodor-Körner-Hof estate at Margaretengürtel has also been used as a solar power surface. The installation of around 280 m² was completed in July 2007 for the new construction of Hugo-Breitner-Hof in District 14. At 311 m² Vienna’s largest photovoltaic system has been constructed as part of repowering the Simmering power plant 1/2. The Energiecomfort subsidiary equipped a passive residential estate in District 21 with a thermal solar system covering 3,500 m². Each of the four individual buildings on this estate has its own solar power system and control centre and is powered fully by this source.

Combined heat and power for district heating

In addition to the stated renewable energy sources Wien Energie also has powerful caloric power plants in Simmering, Donaustadt and Leopoldau with a current total electrical output of around 1,500 MW and thermal output of 1,050 MW. Through power-heat coupling (CHP) heat produced in generating electricity is converted to district heating, which reaches effectiveness of up to 86%. All thermal Wien Energie power plants are almost exclusively operated using the most environmentally friendly fossil fuel - natural gas.

Natural gas as car fuel

Compared with conventionally operated vehicles, natural gas vehicles emit substantially less pollutants and greenhouse gases. With partners Wien Energie is promoting the construction of natural gas stations and is step-by-step converting its own fleet. Around € 9 million will have been invested by 2010. By the end of 2008 the number of natural gas stations in Vienna should grow to 14, and 24 by 2010. The conversion of around 430 vehicles in the Wien Energie fleet from petrol or diesel to natural gas should be completed by 2010. Using a range of marketing and information activities Wien Energie also wants to convince the wider public of the advantages and safety of this environmentally friendly mobility.

With its NaturStrom product Wien Energie Vertrieb offers customer the opportunity to choose ecologically friendly electricity from eco-power and small water power plants and thus makes an important contribution to climate protection. In addition, a product was developed especially for companies and local authorities to record their energy consumption: the Online Energy Management System. This provides complete documentation of daily consumption in individual buildings, self-defined building classes or the complete site. Potential savings can therefore be discovered and implemented quickly.

Wien Energie Wienstrom

In Simmering, the largest power generation location operated by Wien Energie, modernisation of the Simmering 1/2 power plant started in April 2007. Around 300 million is to be invested. After its completion in winter 2008/09 the location...
will have capacity to supply electricity to 800,000 households and 7,000 businesses. In addition, around 200,000 homes can be supplied with heat through the use of the most modern power plant technology. The project expands the system and covers setting up a modern and extremely efficient gas and steam turbine system. This has electrical output of 700 Megawatts (MW) with district heating output of 450 MW. The aim is to achieve 81% effectiveness which would save a million tonnes of CO₂ per year in district heating compared with coal power plants including the use of individual oil furnaces. The power plant is operated exclusively with natural gas, the most environmentally friendly fossil fuel.

Saving energy at work is one of the key sustainability projects for Wienstrom and the aim is to reduce energy consumed in the company’s own buildings by 25% by 2011.

**Commissioning forest biomass power plant Simmering**

The largest forest biomass power plant converted from pilot to full operation in October 2006. The system, which was set up in cooperation with Österreichischen Bundesforste AG, can supply around 48,000 households with electricity and 12,000 with district heating. Compared with a conventional thermal power plant, the use of biomass saves around 144,000 tonnes of CO₂ per year. This investment cost 52 million.

**Wien Energie Stromnetz**

Wien Energie is following a forward-looking and sustainable energy policy; two of the most important aspects are securing and expanding the networks. In parallel to the ongoing maintenance and renewal of the electricity network, as a result of numerous extensions (such as along the S1 main route and the U2 underground line) new transformer substations and network stations were set up and adapted. Wien Energie Stromnetz started to construct the Schwechat substation and renew the Heiligenstadt and Simmering substations. The latter is already one of the largest 110 kV switching systems in Europe and after the renovation will also be one of the most modern.

**Wien Energie Fernwärme**

District heating is one of the most environmentally friendly heating systems especially in conurbations. Wien Energie has almost 40 years of experience in operating highly efficient technologies. 61.5% of Vienna’s district heating requirements come from Wien Energie’s thermal power plants by coupling power and heat. Another 29% of the heat in 2006/2007 came from using thermal waste in the Simmering, Spittelau and am Flötzersteig plants and around 5% from the Schwechat refinery. Here over 95% of the heat comes from waste heat. District heating is not only convenient to use, compared with other types of heating it also protects the environment. The CO₂ emissions per Megawatt hour of energy used is just 132 kg for district heating compared with 400 kg for oil heating. Around 270,000 homes and 5,500 large-scale customers are supplied with district heating at present.

**Environment certifications**

A number of systems and corporate units of Wien Energie have been certified to various lists of criteria in recent years. In order to increase legal and workplace safety and to optimise the ongoing operation of the value-added process for Wien Energie district heat generation systems, certification to the key environmental, quality and workplace safety standards was continued via an integrated management system with the certification of the Flötzersteig location. Certification of the Spittelau location including all peak boiler systems is planned for spring 2009.

**District cooling**

Conventional air conditioning systems are operated using FCKW or similar hazardous replacement chemicals. Wien Energie offers an environmentally friendly alternative for building ventilation by
such means as district cooling. District cooling mainly uses waste heat from waste incineration plant and converts it in cooling centres. The first reference customer is Town Town, a new area in District 3. A cooling centre is planned directly at the Spittelau rubbish burning centre. This centre will in future supply the Vienna General Hospital and Skyline, an office centre in the Vienna belt, with district cooling. With district cooling only around a tenth of greenhouse gas emissions are produced compared with normal ventilation.

Heat storage
In order to use surplus heat capacities when they are actually needed - such as in the morning for heating water - Wien Energie plans to build two remote heat storages with an overall output (storage capacity) of around 170 MW in two central locations in the district heating network. This should reduce the use of peak boilers and achieve overall greater energy efficiency and thus reduce CO₂ emissions.

Wien Energie Gasnetz
At the end of the 2006/2007 financial year the Wien Energie gas network distributed natural gas along its just under 3,500 km long network to around 690,000 customers or over 530,000 heating systems: more than 75% of the connected gas systems have natural gas heating and thus make an important contribution to improving air quality and achieving environmental objectives.

Through increased advertising of natural gas devices and the subsidies available from the City of Vienna, it was possible to increase the number of these efficient and environmentally friendly devices that use the energy from waste gas and thus contribute to reducing the use of natural gas to 7,534 calorific value burning locations by more than 20%.

As a result of its high hydrogen share natural gas burns with lower emission of carbon dioxide, which is one of the gases responsible for the greenhouse effect. Other advantages of natural gas are avoiding unburned elements such as soot and the lowest emissions for sulphur dioxide and nitrogen oxides. In contrast to other fuels natural gas does not require complicated preparation or the addition of extra fuels.

The cleanup operation at the Simmering and Leopoldau location continued and will also continue in the following year.
In September 2007 it was possible to open the new headquarters of the Wien Energie gas network in Simmering after a 19-month construction period. It provides adequate and modern space for the company’s 350 employees. Compared with the current location in District 8 it was possible to reduce operating costs by around 50% thanks to the use of the newest technologies. As a result of additional logistic cost savings and more efficient work processes it should be possible to pay off the investment totalling 19 million in a few years.

“Cooling with natural gas” is a pilot project that is being used for the first time at the new headquarters of the Wien Energie gas network in Simmering. So-called natural gas cooling absorption machines use natural gas for very efficient cooling with a low level of environmentally friendly ammonia.

Natural gas as an environmentally friendly car fuel
Wien Energie is involved as one of the main partners in the “natural gas preparation and network integration” project in Bruck/Leitha. This pilot project aims to demonstrate that it is possible to refine natural gas technically and this is economically sensible. The raw natural gas generated in the natural gas plant is purified and then meets the quality required for natural gas. It is of particular importance as a car fuel as it is neutral in terms of CO₂ emissions. In addition, there is no dependence on imports as domestic resources are used.

Energiecomfort
On 26th October 2007 the Trumau community natural heating network celebrated the start of operations. Energiecomfort, a Wien Energie subsidiary, set up the plant in just six months over a road length of around 3.2 km. It has a
delivery rate of 5,000 Kilowatts. Around 15,000 cubic metres of renewable wood biomass from the region is used each year in the power plant to generate heat and hot water. This resulted in a solution with many synergies: the biomass plant, which was constructed right next to the local sewage treatment plant, will remove liquid from the sludge in the summer months and thus reduce its weight and therefore also the disposal costs. This procedure reduces the water share from 70 to 20%; the evaporated water is around 1,000 tonnes per year.

Environmental involvement by all customers
Wien Energie not only meets its operating supply task but also feels obliged beyond that to society. In order to make an active contribution to improving the quality of life of people in the Vienna area, Wien Energie has been involved in sport and culture for many years.

Wien Energie Building
The Wien Energie Building on Mariahilfer Straße represents a special kind of customer advice centre. It is located centrally on the boundary between Districts 6 and 7 and can be reached easily by public transport. In October 2007 this institution celebrated its 10th anniversary and had welcomed around 700,000 visitors in this period. In generously sized rooms free advice meetings take place and individual energy concepts are produced. Thematic exhibitions complement information provided on all energy generation issues. A permanent, interactive exhibition invites visitors to learn about methods and tips about energy saving. Various heat insulation materials are presented, as are household devices and the energy they use.

Online Energy Savings Check
At the www.energiesparcheck.at website Wien Energie customers can test their own energy consumption for efficiency and economy in the simplest of ways. Classified by the categories of household, heating and hot water, personal energy consumption is calculated using numerous questions. This consumption is compared with the potential savings that are possible by implementing all appropriate measures and the use of energy-saving devices. Subject-specific brochures have been developed for other valuable energy saving tips; these are available in the customer centres, or can be ordered from 0800 555 800 or info@wienenergie.at. Information is also available on the Internet on www.wienenergie.at
saving energy always also saves money.

The challenge is in braking the trend of ever increasing energy consumption without accepting losses to the quality of life. This can be achieved on the one hand by improving final energy efficiency but also on the other by changing the behaviour of energy consumers.

Implementation of more than 100 target actions has already started. The aim is to reduce energy consumption by 2015 from 12% to 7%. Actions to raise awareness have already started, e.g. enforcing the use of energy-efficient technologies, both within and beyond the Council.

MA 27 is responsible for coordinating the implementation of the SEP. A separate SEP coordination body has been set up for this purpose. Initial meetings have taken place with all of the departments involved in the SEP. The Municipal Energy Efficiency Programme has been presented to the municipal departments and their role in implementing the actions assigned. During the SEP until 2015 three reports are to be produced on the progress of implementation according to the Council’s resolution; the first of these is to be in 2009.

The Municipal Energy Efficiency Programme (SEP) moves energy efficiency and saving energy into the foreground and sets guidelines for consumer energy policy up to 2015.

The SEP was produced under the leadership of the EU Strategy and Economic Development department (MA 27) in a two-year process involving all political parties and relevant council departments; it was finally passed by the Vienna City Council on 28th June 2006.

An intelligent, sustainable energy policy covers environmental protection, economics, innovation and social issues. The SEP offers the opportunity to combine the necessary measures for protecting the climate with new technological and economic activities and new future-oriented jobs. The SEP proposes a strategy to implement the objectives of the Kyoto Protocol and the Lisbon strategy to "make Europe the most competitive, dynamic and innovative, science-based economic area in the world" by 2010 from a joint perspective. With more efficient use of energy Vienna will become more competitive - especially as energy prices rise. Everyone will benefit from this because
“In summer 2007 the highest noise abatement wall in Vienna became operational at Theodor-Körner-Hof.” –

“The noise pollution for neighbours has been substantially reduced by sealing music systems at events and their locations.” – Municipal Department of Environmental Protection – MA 22
Cities and noise always go together. Vienna does everything it can to keep noise pollution as low as possible for its population. Such actions as noise abatement walls, Tempo 30 zones, walking speed in residential streets, pedestrian areas, parking space management and better noise abatement for underground trains and trams play an important role.

But noise levels often remain above the desired limit and guideline values - as they do in other cities. Increasingly unconventional methods to fight noise are being used in addition to tried and tested ones. The "Cooperative Noise Renovation" project to find a solution to the problem with those causing and affected by noise and the mediation procedure at the Vienna International Airport are stated as examples of this. The basis for reducing environmental noise has also been laid with the aid of an EU Directive (European Environmental Noise Directive END) which came into force recently. Experts are producing noise maps and action plans across Europe. The most modern computer technology is also providing valuable assistance in reducing noise. Separate IT programs have been developed for both traffic and rail noise. The Municipal Department of Environmental Protection – MA 22 uses three mobile noise measurement systems (in the form of a small lorry, a measurement trailer and a converted dustbin).

Noise is ever present in the city - traffic noise, noise from construction sites, restaurants, commercial operations and the neighbours. The perception of noise is however subjective and it is clear that everyone is involved with noise in the city - either making it or affected by it. During the last study carried out by IFES, 8,300 Viennese over the age of 15 were questioned about various subjects including noise pollution. In residential locations this has remained virtually the same both during the day and at evening and night with a fall of around one per cent compared with the 1995 study.

The City of Vienna, especially council departments 22, 28, 36 and 46 as well as the District Council Offices make ongoing efforts to improve the noise situation in road traffic and in general in the city using various measures and cooperating in projects.

This includes the following:
- Extending the cycle route network, in order on the one hand to improve the attractiveness of using bikes even for commuting and on the other hand to increase the attractiveness of cycling in the range of traffic options.
- Continuous expansion of the Vienna underground network.
- Planning noise abatement projects along roads at a council level and along railways in association with federal authorities.
- Converting roads to residential streets or pedestrian zones and setting up new Tempo 30 zones in Vienna.
- Subsidising noise abatement windows along the main A and B roads, if the limits of 60 dB are exceeded during the day or 50 dB at night.
- The use of road surfaces that reduce noise in road areas particularly affected by noise.
- Plugging music systems in line with the Event and Event Location Law and the trade regulations.
- Activity by experts from the Municipal Department of Environmental Protection for technical noise issues in various administration processes (commercial approvals, planning consent, event planning etc.)
- The acceleration of public transport with modern transportation systems helps to present an alternative to cars.
- Managing car parks, including reducing the level of effort required to find a parking space.
- Use of noise-reduced vehicles, machines and storage tanks by council department 48.

Long-term noise abatement measures take effect
Numerous measures, some of which were started as early as the 1980s, have contributed to successfully reducing the noise pollution experienced by people in Vienna in recent years. For example the noise emitted by vehicles is partially dependent on how fast they drive. The lower the speed, the quieter the vehicle.

The first Tempo 30 zones were implemented as
early as 1987 with a length of 31 km. At the end of 2007 the 20 mph limit was imposed on a total of 1,280 km, which represents 48% of the complete municipal road network in Vienna. Between 20 and 100 km of Tempo 30 zones are added each year. In addition, there are around 140 residential roads and 74 pedestrian zones. Since 2000 the number of both residential roads and pedestrian zones in Vienna has increased. There is at least one pedestrian zone in 19 of Vienna’s 23 districts!

The positive effects on noise are complemented by the ongoing expansion of the cycling route and underground networks as well as by parking space management. At the end of 2007 Vienna’s cycling route network covered 1,090 km. This not only reduces the number of vehicles driving into the controlled parking area by around 16% it also substantially reduces the time required to find a parking space. By constructing so-called “people’s garages” it is possible to ban such noises as banging doors and starting engines underground. In order not to encourage individual transport when a people’s garage is built the same number of parking spaces is removed from the surface. 19 people’s garages with a total of 3,707 spaces are currently in operation.

Noise abatement is also considered when MA 48 buys vehicles and machines. For example, for large sweeping machines noise emissions of maximum 75 dBA are permitted. Rubbish collection lorries and glass collection lorries in particular are equipped with sound insulation.

The installation of noise abatement windows and lower noise ventilators also reduces the effects of traffic noise. The State of Vienna provides financial support.

You can find information on this from MA 25, the Technical Testing Section for Homes, special city renewal matters, on the Internet at http://www.wien.gv.at/ma25/ or by phone: 4000-74870.

Further information on noise
• Free brochures on noise and the ”Everything against noise” CD are available free of charge from the Brochure Service on the Vienna Environmental Hotline, Tel.: 4000-8022.
• You can also find important information on the Internet at www.wien.gv.at/umweltschutz/lois, the online noise information system by the Municipal Department of Environmental Protection – MA 22.

Road traffic noise
In surveys road traffic in Vienna is the most frequently listed source of noise and is found by people to be particularly disturbing. Therefore reducing traffic noise in residential areas along heavily used main roads remains very important especially as a result of the ongoing increases in road traffic.

Noise-reducing road surfaces
When constructing such new main roads as the A 22 extension from Nordbrücke to Lundenburgergasse adequate noise abatement for those living nearby is planned from the very start. It is however very difficult to build noise abatement walls on existing streets in the heavily populated city area. Often it is only possible to improve the noise situation by separating the road from the homes and integrating noise-reducing surfaces. The road surface plays an important role when
it come to reducing noise. At the speeds normally driven in the city the rolling noise of car tyres is the dominant source of noise. The use of coarse-grained surfaces (e.g. exposed aggregate concrete surfaces or grainy grit-mastic surfaces) used when completing Main Road B and motorways contributes to reducing the rolling noise of the vehicles. Such coarse-grained surfaces were used by MA 28 for example in Untere Donaustraße and Hadikgasse.

Noise abatement walls
On Vienna’s Main Road B there are currently around 8,800 m of noise abatement walls with an area of around 31,000 m². Over the past two years two important noise abatement projects with a total length of 1,510 m and total investments of €1.25 million were implemented in Wientalstraße and Donaustraße. There are currently 56.3 km of noise abatement walls covering around 206,000 m² along the main roads in Vienna.

In 2006 MA 28 completed noise abatement walls around the East Motorway, the Nordbrücke extension and the South-East Tangent (Landstraße interchange) with a total length of around 13,200 m, an area of around 46,000 m² and costs totaling 7 million.

Between 2008 and 2010 noise abatement walls will be built near Grossjedlersdorfer Straße, Erzherzog-Karl-Straße und Altmannsdorfer Straße. In summer 2007 the highest noise abatement wall in Vienna was completed at Theodor-Körner-Hof. The “SYLVIE noise abatement wall Theodor-Körner-Hof” project, which was realised as part of the LIFE environment EU subsidy programme, aims to improve the noise from rail and road along the southern belt and improve the quality of life for those living near by.

Environmental Noise Directive
The implementation of the “Environmental Noise Directive” (European Council Directive 2002/49/EU on assessing and reducing environmental noise) will provide data material on the noise situation in conurbations caused by road and rail vehicles, airports and IPPC systems for the first time.

In this regard the following measures will be implemented step-by-step:
- Determining the pollution caused by environmental noise using noise maps using assessment methods applicable to all member states.
- Providing information to the public on environmental noise and its effects.

Using the results from noise maps, the member states will produce action plans with the aim of preventing and reducing the health damaging consequences and maintaining the environmental quality in areas where it is satisfactory.

The strategic noise maps were produced for Vienna in 2007. These maps must be checked at least every five years (and updated if necessary) and made accessible to the population via the Internet. The responsible authorities will produce action plans including the corresponding measures to reduce noise problems during 2008. These must also be reviewed, adapted and made accessible to the public every five years.

Road traffic noise-emissions register
Anyone wanting to know how loud the road noise outside their window is can already take a look on the Internet at www.wien.gv.at/umweltschutz/lois. This provides comprehensive information on the subject of noise, including the “road noise and emissions register” (abbreviated to SLIM) that covers the complete main road network. The database will be extended further when implementing the Environmental Noise Directive. The priorities for noise abatement measures are currently being set with the aid of SLIM. The effects of traffic management changes such as moving traffic away or speed limits can be checked in this way. The data is also used for town planning, e.g. to produce noise assessments or calculate the dissemination of noise under different conditions. In future the noise maps from the EU Environmental Noise Directive can be used for this.

Railway noise
According to the “Life and Quality of Living in Vienna” study around nine percent of the population suffer from noise that comes from trains and carriages travelling on the railways. This type of noise is created by wheels touch-
The noise emissions on Austrian Railway (ÖBB) tracks in the Vienna city area were calculated in 1993 with the railway traffic noise & pollution register. In 2003 the railway traffic noise & pollution register’s train data was evaluated with a forecast of future traffic data for 2016. Updating the planned depiction of the emissions data along the railways, which was laid down in law by the implementation of the EU Environmental Noise Directive, will be completed using noise maps. The data from the register or future noise maps and action plans from the EU Environmental Noise Directive is used in the planned designation of areas and construction as well as when planning noise abatement measures for residential buildings on existing railways and other general plans in Vienna.

When constructing the Leopoldau Station noise abatement wall the effect of transparent noise abatement elements compared with a highly absorbent design was tested. From a town planning and operating perspective the use of transparent noise abatement elements is frequently demanded, for example for railways. As a result of the test series noise abatement section by the Municipal Department of Environmental Protection – MA 22, it was proven from a technical perspective for the first time that this results in a worse result by up to 5 dB. Seven different arrangement combinations of the transparent elements were tested. A future repeat of the test series under different noise dissemination conditions is planned with ÖBB Bau AG.

In 2007 tests were made alongside ÖBB and the fire brigade to quickly overcome noise abatement walls in an emergency.

Existing track renovations in Vienna

The existing track renovation project was started in April 2001 as a result of an agreement between federal authorities and the state of Vienna and this plans to renovate the existing tracks before the Railway Traffic Noise & Emissions Protection Regulation came into force. The basis for implementing the renovation is on the one hand the railway traffic noise register (emissions and pollution) and on the other a priority list by the Municipal Department of Environmental Protection – MA 22. This depends on federal criteria agreed for the whole of Austria, noise pollution and the number of local people affected. By the end of 2007 as part of the existing track renovation project, which is financed 50% by federal authorities and 50% by the state of Vienna (MA 22), noise abatement projects were completed near Westbahn (Blindenwohnheim, Johnstraße – Penzing Station), Leopoldau Station, Nordwestbahnhof, Nordbahnhof, around Oberlaa, around Klenkweg and along Handelskai (only window subsidies). The size of the noise abatement projections depends on the assessment level of 55 dB at night.

© Christian Jobst

Emissions register Erzherzog-Karl-Straße, 22.

U6 housing area Alt Erlaa
Apart from the project along Handelskai, which only involved window subsidies, all other projects are a combination of noise abatement walls and window subsidies to adhere to the assessment level of 55 dB at night. In addition, projects are planned along the following sections Südbahn (Atzgersdorf Station to state border and Einsiedlergasse to Meidlinger Hauptstraße), Westbahn (Ameisgasse to Deutschordenstraße), Vienna North-Bernhardsthal (near Wasserparkbrücke to Werndlgasse), Vienna South Nickelsdorf (near Ghegastraße to ÖBB workshop Simmering) and Penzing–Heiligenstadt (Rankgasse to Wilhelminenstraße).

Underground and trams are still getting quieter

WIENER LINIEN (Vienna public transportation) is also increasingly focusing on noise abatement. For example low-noise carriages with noise abatement aprons and noise-absorbing under-floors have been developed for trams. New methods for noise insulating the tracks also ensure that less noise penetrates the homes along the tracks. If the tracks are to be extended or a new route constructed, the expected body emissions in the surrounding flats have been measured cautiously since 1985. If the results are unfavourable the tracks are built on a highly protected superstructure.

Regular maintenance of the tracks by grinding and/or lubricating as well as noise abatement walls along the underground sections mean that less noise is created. The underground is virtually noiseless when below ground. Thanks to noise-optimised tunnels and superstructure hardly any noise is produced and the transport noise is reduced by noise-absorbing tunnel fittings.

In a similar way to road noise there is a noise register for trams and the underground that is used by WIENER LINIEN (Vienna public transportation) to plan and implement noise renovations. For future projects noise abatement is included from the very start. For example, the extension of the U2 underground line towards Aspern currently being constructed was subject to a comprehensive environmental effect check as part of the Environmental impact assessment Audit.

Plane noise

In contrast to road traffic noise, which creates an even ongoing noise if traffic flow is heavy, for air traffic each flight movement is perceived as an individual movement even if traffic density is high. Even if the noise is not at a high decibel level it can be clearly differentiated from other noises by the striking turbine or propeller sound. Noise peaks are created especially when taking off but also when landing because of the low flying height.

Air traffic regulations are federal matters and are based in part on the international treaty by ICAO (International Civil Aviation Organisation), which is part of the UN.

Following the mediation contraction signed on 22nd June 2005, the "Dialog Forum Vienna International Airport" Association was established to continue the tasks laid down in the mediation procedure. Vienna is represented in the board and working committees. In 2006 and 2007 the focus of the work was on evaluating the agreements made in the 2003 sub-contract to improve take off and landing routes, their occupancy and cooperation with the Environmental impact assessment Audit for the third runway so that it is produced in line with the mediation contract. In 2007 it was also agreed that Flughafen Wien AG (Vienna International Airport) will provide the State of Vienna with a plane noise measurement system that can be set up by MA22 in the town area as needed.
"Subsidies were provided for the installation of condensing boilers in 269 homes in 2007." – MA 25 - Town renewal and residential test section

"We have used thermal home renovation ("Thewosan") in around 43,000 homes to reduce the heating requirement." – MA 50 - Home subsidies and arbitration section for residential matters

"By installing sun collectors for hot water and to support heating at Hugo Breitner Hof we have saved an additional 10 tonnes of CO₂." – Community-owned Apartments (Wiener Wohnen)
**Ecology when building homes**

Subsidised Vienna homes combine economic with planning and ecological objectives. Low energy homes and innovative environmental technologies are already standard for many new buildings. Now activities are increasingly concentrating on renovations and on lowest energy and passive homes. The key to ecological homes in Vienna is publically tendered developer competitions.

**Avoiding halogenic hydrocarbons**

Construction materials that contain halogenic hydrocarbons, KPS insulation plates or PU assembly foam have not been permitted in subsidised homes since 1999. Noise protection windows in subsidised homes are no longer filled with full sulphur hexaflouride.

**Passive house estates**

The City took the next step towards protecting the climate with several passive homes in 2007. At 15 kWh/year/m² these require only one third of the energy of low energy homes.

The subsidised passive homes implemented to date include:

- 1020, Molkereistraße: hall of residence, in use since 2006, high satisfaction level according to evaluation study
- 1210, Mühlweg, Part C, mixed wood construction
- 1110, Pantucekgasse, combined with geothermals
- 1110, Dreherstraße 66
- 1140, Utendorfgasse 7
- 1220, Eßlinger Hauptstraße 17
- 1230, Anton-Heger-Platz 4

Other passive homes - including the EUROGATE project, Europe’s largest passive home project with more than 700 flats - are being planned or are in construction. Passive homes already constructed are to be comprehensively analysed in 2008.

**Thermal home renovation**

Since 2000 the city has subsidised reducing the need for heating by "Thewosan" - thermal home renovation. By the end of 2007 around 500 properties with 43,000 flats and total construction costs of 410 million were completed. A further 400 properties with over 30,000 flats are currently in planning. This results in energy savings to date of around 269 Gwh or a reduction in CO₂ emissions of 97,000 t per year, together with other renovation measures (foundation renovation etc.) even around 220,000 t – the average annual consumption of 150,000 cars.

**RUMBA guidelines for environmentally friendly construction sites**

With the “RUMBA” project the city of Vienna is following a strategy whose extent is unique in
Europe to reduce the environmental effects of construction sites. RUMBA was tested and comprehensively evaluated at the District 11, Thürnhofstraße construction site as a pilot project.

**RUMBA focuses on:**
- Optimising construction site traffic through logistics management
- Railway rather than road for transporting materials
- Subsiding low pollutant lorries
- Removal restriction for excavations
- Sorting island for separating waste
- Environmental management (surfaced construction roads, covering and draining dust producers)

As part of the monitoring by Vienna Residential Research the scope and type of deliveries were assigned to the individual properties being constructed.

**The recommendations of the expert group are currently being implemented in the following areas:**
- Environmental and construction logistics coordination should be inserted into the Construction Coordination Law.
- Appropriate tender documents for developer competitions
- Setting up and maintaining construction logistics centres, e.g. the port of Vienna (Wiener Hafen)
- Tender examples for RUMBA Guideline (www.rumba-info.at)

**Residential estate**
Hugo Breitner Hof

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**Overall renovation activity by Wiener Wohnen 2006/07**

**The first council housing with solar systems – Hugo Breitner Hof, Vienna 14.**

The Hugo Breitner Hof estate in District 14 was built between 1949 and 1956 over an area of 16.3 hectares; the estate covers 130 buildings and 1,300 flats. In October 2000 comprehensive renovation started. Renovating council homes is always a challenge for those managing the process as it takes place with full occupation, i.e. the tenants continue living there. As part of this renovation a heat insulation system was attached to the external walls and the windows were exchanged. In addition to fixing insulation to the top ceiling, these measures represent traditional energy renovation by Community-owned Apartments (Wiener Wohnen).

But in this case 200 new flats were created by extending the top floors which also increased the compact nature of the estate and thus sustainably improved the energy parameters of the homes.

From a technical perspective, in addition solar collectors were installed on the roofs to supply the attic flats with hot water and support the heating system in winter. This action can save an additional 10.4 tonnes of carbon dioxide.

**ECO subsidies for small volume home development**

**Heat pumps**

The City of Vienna is encouraging the use of heat pumps by eco-subsidies. In the period under review air/water heat pumps, water/water heat pumps and solar/water heat pumps were subsidised. There is currently a clear trend to heat pumps with vertical collectors. In 2007 systems for a total of 151 residential units were subsidised. The subsidies provided totalled around 813,000,000.

**Improving new construction materials**

In order to make saving energy attractive subsidies are provided for improving the ma-
The City of Vienna constructed water heating systems using solar-thermal equipment in 2006 in the Vienna 23 nursery, Johann-Hörbiger Gasse 43, Vienna 7 Council Office, Hermannngasse 24–26 and Vienna 7 school, Neustiftgasse 100.

In the 2007 administration year 4,247.30 m² of collectors were installed; this corresponds to another increase of around 20 % over 2006 (3,566.48 m²), and €840,438.73 was paid out for 331 subsidy applications.

In 2007 the City of Vienna installed hot water systems using solar-thermal equipment in Vienna 23 school, Anton-Baumgartner-Straße 119 and the business premises of MA 49 in Am Cobenzl, Vienna 19.

This subsidy measure is based on a council resolution for two years, whereby for 2006 and 2007 around EUR 1 million was available as the budget for solar-thermal systems.

Gas condensing boiler subsidies
In order to reduce the use of primary energy the use of gas condensing boilers was subsidised in new homes. Subsidies totalling around € 404,000 were provided in 2007 for systems in 269 homes.

Fixed position solar systems
Solar energy aims to reduce energy imports, improve the environment and protect resources. Subsidies are provided by granting one-off, non-repayable investment cost subsidies.

The subsidy for setting up a solar system to heat water is 30% of the investment costs that can be subsidised.
There is a minimum of €1000 and a flat sum of €70.00 per m² of absorber area.

The subsidy for setting up a solar system to heat water with room heating support is 40% of the investment costs that can be subsidised.
There is a minimum of €1000 and a flat sum of €100.00 per m² of absorber area.

Natural people and legal entities that have evidence of appropriate solar use may make an application.

In the 2006 administration year 3,556.48 m² of collectors were installed; this corresponds to an increase of around 70% over 2005 (2,066.06 m²), and 748,055.74 was paid out for 289 subsidy applications.
"The Vienna EcoBusinessPlan has become an international example, as demonstrated by partner projects in Hungary, Albania, Ireland and India." –

"As a result of the "Field Living Space" contract nature protection programme, the fields around Vienna experience an upgrade by increasing the variety of species." –
Municipal Department of Environmental Protection – MA 22

"The port of Vienna (Wiener Hafen) saves the Vienna region around 80,000 lorries trips per year as a result of the high share of good transports per ship" –
Port of Vienna (Wiener Hafen)

"In order to reduce the fine dust emissions on construction sites we check adherence to the statutory compulsory fitting of construction machines with diesel particulate filters." –
MA 36 - Technical commercial matters, official electric
and gas matters, fire brigade police and events

"The core objectives of the Vienna agriculture policy are expanding organic land use and the long-term guarantee of non-GM agricultural production." –
MA 58 - Water law

"EcoBuy Vienna, as a leader in ecological purchasing, makes a key contribution to Vienna's reputation as an exemplary environmental city." –
ÖkoKauf Wien
“Summer night’s cooling for servers and large computers, homes heated with waste heat from bakeries and annual savings of more than 500 t of paper that help to save newspaper printers € 200,000 per year - what do these projects have in common? They save resources, improve profitability - and were developed and implemented as part of the “EcoBusiness Plan Vienna”. This model project is an expression of the present-day understanding of the Vienna City Administration which sees itself as an active partner and no longer simply focuses on regulatory procedures.

**An initiative that pays off**

Since the programme started in 1998 more than 600 EcoBusinessPlan businesses have implemented around 10,000 voluntary environmental protection measures and invested over € 111 million in improving their eco-efficiency. At the same time they could save over € 34 million in operating costs and achieve astounding ecological benefits. For example, energy consumption fell by over 145 gigawatts (corresponding to the energy consumed by 48,500 Vienna homes), 111,000 tonnes of rubbish were avoided and more than 72.5 Mio transport kilometres not travelled. After an average of just 17 months these investments in environmental protection had paid off for the company.

**Individual environmental programmes for Vienna’s businesses**

The "EcoBusinessPlan Vienna" uses existing tools. Its modules, which correspond to industries and business sizes, include such established environmental management systems as EMAS and ISO 14001 as well as the "Austrian Ecolabel Tourism" and "Eco-profit". “Eco-bonus” is a module that focuses on saving energy and managing waste in small companies. From 2007 there was also a module for producing sustainability reports. In addition pilot projects are running for "sustainable products and services", “chemical leasing” and “environmental management systems for small manufacturing companies”.

External advice is the key to success. Experienced professional advisers produce individual environmental programmes together with the businesses. The rewards include financial advantages, a positive image and frequently also competitive advantages.

**Together Towards success together**

The “EcoBusinessPlan” is living out ecological social partnership. The strategic advice and supporting organisation, the "EcoBusinessPlan" advisory board, includes the Vienna Chamber of Commerce, Vienna Business Support Institute and Federal Ministry of Agriculture, Forestry, Environment and Water Management as well as the Union Association, Chamber of Labours, the Vienna Business Development Fund and of the City’s the Programme management is handled by the Municipal Department for Environmental Protection.

**Constant improvement through external evaluation**

The performance of the “EcoBusinessPlan Vienna” is audited and assessed each year by an independent, external evaluation. The basis for this is a database of measures listing all operational actions with the expenses, costs and successes. The Programme management develops the "EcoBusinessPlan" on the basis of the results of the annual evaluation report. This system of a database plus external evaluation serves as best practice throughout Austria.

**National and international recognition: from Cork to Chennai**

The Federal Ministry of Agriculture, Forestry, Environment and Water Management demonstrates its confidence in the activities of the EcoBusinessPlan Vienna by supporting the programme with 300,000 € per year. The Vienna programme has also become an international best practice: There
were and are internationally supported partner projects including in Győr (Hungary), Cork (Ireland), Durres (Albania), Chennai (India) and in 25 city and port administrations around the Adriatic Sea. Currently a UNIDO project is starting and the Vienna model is to be transferred to another 6 large Indian cities.

In 2006 EcoBusinessPlan Vienna won the "Eurocities Award for Cooperation". In addition EcoBusinessPlan Vienna was ranked by UN-HABITAT among the 48 best of a total of 609 projects.

The "City of Vienna Environmental Award" as part of the "EcoBusinessPlan Vienna"

The "City of Vienna Environmental Award" is given each year to outstanding projects selected by an independent jury as part of the "EcoBusinessPlan Gala" in the ballroom of the Vienna Town Hall. The event is under the patronage of mayor Dr. Michael Häupl and environmental councillor Mag.a Ulli Sima.

The award-winners in 2007 were

- **Kraft Foods Österreich GmbH** for reducing the amount of aluminium in coffee packaging by 58 tonnes per year.
- **Realgymnasium Rahlsgasse – Vienna** for professionally integrating pupils into the school’s environmental management.
- **The cooperation by eight Vienna travel agents "Travelling with extra"** (Angelika Plotz Qualitätsreisen, Grafi & Walters Auszeitreisen, Destino Mondo, Hauser Exkursionen, H.T.S.-Reisen Wien Hellenic Touristik Service GmbH, Odyssee Reisen GmbH, Queen Travel/R & K Reisen GmbH, Team Travel Service) for developing and marketing ecological and socially sustainable travel options.
- **the evergreen project team from pos architects ZT-KEG** for developing an energy efficient greenhouse that saves up to 27% of the heating energy.

Further info on the "EcoBusinessPlan Vienna": Municipal Department of Environmental Protection – MA 22, Tel. 4000-73573; Email: office@oekobusinessplan.wien.at; Internet: www.oekobusinessplan.wien.at

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**Port of Vienna**

The port of Vienna (Wiener Hafen), located in the east of the city, is one of the largest goods distribution centres in the Vienna region with a turnover of 5.5 million tonnes in 2007. 1.6 million tonnes of this arrives or leaves by internal waterways. This corresponds to around 80,000 loaded lorries whose goods are thus transported over long distances into the Vienna region in an environmentally friendly manner.

The Freudenau container terminal turns around over 323,000 container units and therefore impressively confirms the leading position of port container traffic. A tight network of daily train connections to European sea ports also takes the pressure off long distance road traffic.

With the current expansion of the Freudenau
combined terminal, the railway bridge over the entrance to the port, which was destroyed in the Second World War, is being rebuilt and this therefore closes the railway ring to the east of the city and creates a direct connection to the port area from the Kledering central goods station. This means less future transfer activity for those living near the Donaukai Station.

Spectacular heavy goods movements took place again in 2007 in the Albern Port, including two gas turbines and two power station generators.

The infrastructure in the Freudenau, Albern and Lobau ports is that of a modern transfer system and is improved in ecological terms on an ongoing basis. As a result of the quick transfer options between ship, rail and lorry, the port offers business the necessary requirements to switch to integrated transport and to environmentally friendly river transportation.

Internet: www.wienerhafen.com

Environmental awareness in Vienna's businesses

Vienna’s business are characterised by a high level of environmental awareness. They aim in addition to economic success to improve the environmental quality of the city and the Council provides clear support for these efforts. For example when implementing the numerous but necessary rules and laws.

So for commercial operations the setting and regular checking of adherence to emission limits, the trade regulations and the rules based on them that are issued are key. If limit values are set for certain pollutants the commercial businesses must adhere to them. Emissions of pollutants for which such rules do not exist are assessed according to their effects on the environment, primarily on the population, and limit values are set in line as part of the system’s approval procedure. In this regard, the “state of technology” at the time of approval must be considered at least for actions to limit air pollutants.

For larger operating systems, especially industrial systems that are considered to be IPPC businesses as a result of their production branch or capacity, an integrated concept and the use of the best possible technology must be submitted for approval and checking as shown in the EU-wide BAT reference documents (BREFs). In Vienna this mainly affects municipal energy suppliers (electricity plants and remote heating plants), waste burning and treatment plants and some chemical and food manufacturing businesses. They must reduce their emissions for all environmental media (air, water, ground) and noise as well as minimise energy consumption in order to achieve trusted procedures that guarantee a high level of environmental protection whilst considering costs and benefits. The IPPC businesses had to fulfil this obligation independently by 31st October 2007.

Steam generators and heating systems in commercial businesses

Steam generators with caloric thermal output over 50 kW are subject to approval as a result of the Emissions Protection Law for Boiler Systems (2004). For commercial businesses this approval is issued along with the approval for operating systems. Boiler systems for solid and liquid fuels with a caloric thermal output over 100 kW or systems for gaseous fuels with more than 600 kW must be checked each year by an expert. Above a caloric thermal output of one megawatt emission measurements must be carried out at regular intervals. If the system produces more than two megawatts this must be communicated each year by an “emissions declaration”.

The permitted emissions limit values for heating systems with a nominal thermal output of over 50 kW are regulated in the “Furnace System Regulations” (1997). The systems must be checked annually and the emissions measured. Older systems had to meet this regulation by 1st June 2006 at the latest or be exchanged.

Limiting the emissions of organic solvents

The “VOC Equipment Regulation” controls or limits the emissions of organic solvents and is aimed at business that use more than 500 kg of solvents per year. Examples include businesses with coating systems such as carpenters, locksmiths, car workshops, textiles cleaning businesses and printers. The complex content
of rules required the regular measurement of waste air and the creation of annual solvent balances. In individual cases costly measures are required to reduce the emissions of organic solvents.

Reducing the emissions of environmental materials

The "Chemicals Law" contains a variety of material-specific regulations to prevent the use and dissemination of environmentally damaging materials such as organic solvents, asbestos, heavy metals, ozone removing or greenhouse gas supporting gases, poisons etc. Many hazardous products are replaced by less damaging ones. Several restrictions on climate-related gases have come into force with the "Industrial Gas Regulations". These mainly refer to fully and partially halogenated fluorocarbons that are used cooling, solvent and extinguishing chemicals as well as propellants for aerosols. The use of sulphur hexafluoride as an insulating gas in high voltage switching gear and a filling gas for tyres and noise protection windows is now limited under the "climate protection" motto.

The trend towards higher environmental friendliness is clarified by the "Biocide Product Law". This regulates for example the use of cleaning, disinfection and pest control chemicals in homes and businesses.

Preventing emissions on construction sites

With regard to the fine dust issue, since November 2006 construction sites and builder’s yards have been tested and the compulsory fitting of filters on construction machines with output over 37 kW checked.

As the statutory requirements are only met by the construction industry to a very limited extent, criminal notices have been sent to the relevant District Council Offices since summer 2007.

From 1st January 2008 the particulate filter duty includes machines with output from 18 kW so additional action is required for compressors and small excavators. The checks will continue without change in this regard.

Independently of the checks for the statutory provisions of the IG-L list of measures in 2005 checks are made on construction sites especially for other reasons - such as complaints about noise, exhaust, dust, notifications of building demolitions etc.

Vienna's Agriculture

Agriculture plays an important role in maintaining the city’s green areas. 16% (around 6,500 ha) of the city is used for agriculture. Vineyards, meadows, gardens and crops characterise the landscape of the external districts. They are the basis for around 770 Vienna businesses to produce high quality wine, vegetables, crops and fruit but also space for living and relaxation for the people of Vienna. In addition to securing the management of the agricultural areas around Vienna the further expansion of environmentally friendly production is a key element of the Vienna Agricultural Policy. The core objectives are the expansion of organic agriculture and long-term security for non-GM agricultural production.
The "Austrian Environmental Programme (ÖPUL)" is of key importance to expanding environmentally friendly production. This subsidy program has become the most important instrument for environmentally friendly agricultural production. It offers measures for all kinds of agricultural production that give the businesses the corresponding subsidies if the management regulations are met. The most important measures for protecting the environment are "organic agriculture", "non-use and reduction in the use of equipment" and "integrated environmentally friendly production methods" for vegetable, fruit and wine. In 2006 Vienna crop, garden, wine and fruit businesses took part in the various measures, which covered an area of around 5,000 ha. The positive environmental effect of the programme, which is guaranteed to continue until 2013, can be seen, for example in the continuous increase in the organically managed area from 314 ha (2001) to 1,122 (2006).

Fields as habitats
Another successful project since 2002 is the "Fields as habitats" contract nature protection programme. As a result of this programme, which is unique in Austria, fields around Vienna are upgraded by increasing the diversity of species. In order to create space for threatened plants and animals fields are removed from agricultural use and converted to wild flower protected fields, nature protection areas and species-rich meadows using suitable agricultural and care measures.

Non-GM production
With the aid of the "Vienna Gene Technology Prevention Law" that regulates the coexistence of GM, conventional and ecological field cultures and the voluntary non-use by agricultural businesses as a result of signing the "Voluntarily without gene technology" declaration started by the City of Vienna, the Vienna Chamber of Commerce and the LGV Fresh Vegetables Vienna, freedom from gene technology is guaranteed in Vienna agriculture.

You can also find more information on these projects and other environmental activities by Vienna’s agricultural business in the "Vienna Agriculture Report 2007" from the following website: http://www.wien.gv.at/umwelt/wasserrecht/wiener-landwirtschaftsbericht-2007.html.

"ÖkoKauf Wien"
"ÖkoKauf Wien" was launched in 1998 - then as a project, now a programme, to give stronger assistance to the Vienna City Administration, the Vienna hospital Association, City of Vienna – Housing in Vienna (Wiener Wohnen) and the Vienna Public Utilities on purchasing goods, products and services from an ecological perspective. The large-scale project came out of the "KliP Wien" climate protection programme and makes an important contribution to its objectives. The role of "ÖkoKauf Wien" is to produce environmental lists of criteria for all goods, products and services purchased by
the City of Vienna. The range of products covers detergents, office material, construction materials, food and even services. The fact that the results of "ÖkoKauf Wien" are binding when awarding contracts as a result of an order by the Chief Executive Director is unique internationally when it comes to ecological procurement.

Organised across the council
"ÖkoKauf Wien" is organised across several departments and is managed by a programme manager and steering committee. Vienna’s environmental councillor Ulli Sima is the mentor. The steering committee is comprised of experts from the Chief Executive Office, the Office of the Administrative Group for the Environment/Press and Information Services, the relevant Municipal Departments, the Executive Office for the Coordination of Climate Protection Measures, the Vienna Ombuds-Office for Environmental Protection (WUA), the Vienna Hospital Association, the Ombuds Office for Animal Protection, the Vienna Public Utilities and City of Vienna – Housing in Vienna (Wiener Wohnen). This project is managed by Chief Executive Office – Executive Group for Construction and Technology, Project Coordination Office.

The practical work on the criteria is carried out in technical working groups. Separate advisory committees have been set up for the special areas of "law" (each list of criteria is checked legally after the content has been produced), "public relations", "organisation". In the reporting period 180 employees have participated in the 21 working groups.

Varied public relations work
In order to make City employees, interested people from trade and industry and citizens aware of "ÖkoKauf Wien" a lot of publicity is provided. Encouraging reports about "ÖkoKauf Wien" in print media, the Internet, the City of Vienna intranet, radio and television is an ongoing task using press conferences, press releases, articles and meetings. In 2006/2007 there were around 120 media reports and 90,000 accesses to the "ÖkoKauf Wien" website. Brochures, folders, posters, films and games were produced for particular subjects.

The "Better life for pigs and co - what makes these animals happy?" animal quartet was a particular success in 2006 among the materials for children and adults. The game teaches children about the needs of farm animals like chickens, rabbits, turkeys, cows, sheep, pigs and goats.
The "BIOBOX" games collection was provided to all nurseries and first and second classes in elementary schools in Vienna free of charge. "BIOBOX" aims to encourage understanding about the difference between conventional and organic agriculture and healthy eating. As a result of the great success, "BIOBOX" will be produced again for ongoing needs by "ÖkoKauf Wien" in 2008.

In two large-scale information waves the "Clever purchasing for schools" activity encouraged high quality, environmentally friendly and cost-effective purchasing of school items in all Vienna schools.

The City of Vienna employees were informed in 2006 about "double-sided printing and copying".

There is a lot of practical information from "ÖkoKauf Wien" that can be downloaded at www.oekokauf.wien.at.

International recognition

Vienna receives ongoing international recognition as a result of the "ÖkoKauf Wien" programme. In summer 2006 "ÖkoKauf Wien" was listed among the best practices for the second time at the "Dubai International Award for Best Practices 2006", a UN-HABITAT initiative - from a total of 650 sustainability projects submitted from around the world.

"ÖkoKauf Wien" was awarded the "PMI Austria Excellence Award 2006" for extraordinary projects and project management services in November 2006 as part of the "Project & Portfolio Management Symposium 2006" that took place in November 2006 at the Reed Trade Fair, Vienna.

As a result of its leading role "ÖkoKauf Wien" was invited in September 2006 to Barcelona to the international EcoProcura 2006 Conference and in November 2007 by the City of Madrid to a conference for experts from administration, science and non-governmental organisations.

"ÖkoKauf Wien" is also represented in the "sustainable procurement" working group of EUROCITIES.

The work of "ÖkoKauf Wien" makes a key contribution to Vienna’s international reputation as environmental city.

Examples from individual working groups

- Disinfectant work group: Complete: Disinfectant database WIDES, produced in cooperation with AUVA and the Austrian Society for for Hygiene, Microbiology and Preventative Medicine. Is available internally to employees of the City of Vienna, the group of users will be expanded.

- "Electrical office and household devices" work group: New lists of criteria: electrical and electronic devices, note books, commercial dishwashers, PDAs (pocket PCs, handhelds). Revised criteria: copying services and fax devices. Planned: Inclusion of certain criteria from the ON rules for electrical devices that have a repair-friendly design in the relevant lists of criteria.

- "Fleet" work group: completed: Position paper alkylate petrol with obligation on the departments of the City of Vienna to exclusively use this petrol.

- "Home technology" work group: New criteria: hot water under-floor heating and urinals. Revised criteria: illuminants, power units and light bulbs, non-adjustable flow limiters for sinks, radiators, boilers and stores for hot drinking water, water and energy saving sanitary fittings and heating and cold water pumps in the INLINE design. The work group is also intensively involved in making the
LB building technology more environmentally friendly.

- "Food" work group: Achieving ongoing increase in the budgetary share of organic food in the Vienna Hospital Association, old people’s homes, day nurseries and schools. The share is currently for the Vienna Hospital Association (Vienna Hospital Association) 32%, in nurseries 51%.


- "Events" work group: New criteria: making events more ecological.

- "Textiles" work group: Instruction to Austrian Textile Research Institute for a current status analysis of human-ecological principles for Eco Tex Standard 100 for the textiles purchased by the City of Vienna and the Trust of the Vienna Homes for the Elderly.

- "Waste Disposal" work group: Established in May 2006. The aim is to ensure and promote ideal, ecological treatment of waste from municipal organisation to the City of Vienna sites.

- The PVC position paper is being constantly confirmed as a result of ongoing appeals by the PVC industry.

"ÖkoKauf Wien" media meetings "Ecological criteria for building schools" on 21.3.2007 (left to right): Gerhard Weber (town planning director, City of Vienna), Renate Marschalek (PR spokeswoman), Karin Schwarz-Viechtbauer (ÖISS – manager of the school construction section), Dr. Wolfgang Souczek (head of department for school conversion, Federal Ministry for Teaching, Art and Culture), Ekkehard Philipp (Head of "ÖkoKaufWien" programme), Josef Neumayer (Head of department MA 34, City of Vienna)

This is how the environmentally conscious workstation looks according to the "ÖkoKauf Wien" criteria.
"Through active cooperation in various forums organised by the EUROCITIES network of major European Cities we can play a key role in current EU environmental issues." – Municipal Department of Environmental Protection – MA 22

"An in-tact and clean environment makes a key contribution to direct quality of life and can only be retained by sustainable environmental policy." – Press and information service - MA 53
Chapter 13
INTERNATIONAL ACTIVITIES

Vienna International

Vienna positions itself internationally as an environmentally friendly city

In recent years the international competition of cities has increasingly focused on the environment. An intact and clean environment makes a key contribution to direct quality of life and can only be retained by sustained environmental policy. Vienna is an exemplary environmental city and not least a city with the highest quality of life. For business so-called "soft factors" have been important location factor for some time.

In 2007 Vienna presented itself on 4 international stages - together with its partners Vienna Tourism, the Vienna Business Development Fund and the Vienna Chamber of Commerce - in New York, Berlin, Bucharest and the United Arab Emirates. This demonstrated that the environment and "Vienna as an exemplary environmental city" received great interest internationally and therefore rightly became key elements of Vienna’s international work. Vienna scores on the one hand as a location on the other as an exporter of expertise.

District heating becomes "district cooling"

As part of the Vienna presentation in the United Arab Emirates in November 2007 there was an exchange by experts in environmental issues. As water is a valuable resource in desert cities, it must be managed carefully. Vienna Water Management could help. There were for example specific meetings about transferring Vienna’s technology to renovate the sewage plant in Dubai.

Thanks to the efficient combination of generating energy and disposing of waste, the power generation concept at the Spittelau waste incineration plant saw a great deal of interest. The power gained would in the desert cities not be used for district heating but rather for "district cooling" e.g. of office buildings. A technology already in use in Vienna.

Combining creativity and technology

Representatives from the waste management departments met in New York. Vienna was praised for its high level of waste management and environmental policy. In New York waste is not treated but rather almost completely stored in land fills by private companies. The "waste to energy" strategy (e.g. burning waste) experiences widespread resistance from the population. Vienna went its own way and wrote a success story for the same issue: Thanks to the artistic design by Friedensreich Hundertwasser and the comprehensive publicity the initially unpopular Spittelau waste incineration plant was not only accepted and the power generation concept understood, it even became a tourist attraction.

Vienna is recognised and known as an exemplary environmental city not only in distant destinations but also in Berlin and Bucharest. Part of the success concept is the parks and green areas in Vienna that make a major contribution to excellent quality of life as well as energy-efficient home building.

International networks give the impulses

In connection with sustainable development cities and their agglomeration have moved to the focus of interest in recent years as those causing environmental problems but also as places for innovation and solutions. With its involvement in international networks and projects, the City of Vienna underlines its commitment to finding local answers to global questions!

In addition the projects subsidised by the EU Commission, cross-border networks represent the most important trigger for cooperation in municipal and regional environmental matters and also contribute to the corresponding positioning at a national and EU level.

The EUROCITIES network

The EUROCITIES network, which already belong to 120 large cities, is of high interest regarding to urban environmental matters. Vienna plays an active role in various fora and can therefore play an important key role in current EU subjects at a European level. Vienna’s activities in the various EUROCITIES fora are coordinated by MA 27 - EU strategy and economic development.
The environment forum, in which Vienna is represented by the Municipal Department of Environmental Protection – MA 22, makes statements on all environmental proposals from the EU commission, works on projects and exchanges experience. The focus in 2006 was on exploring the local importance of EU strategies such as the "Thematic strategy on urban environment", the "Thematic strategy on air quality" and the "Sustainability strategy". The activities also focused on intensive discussions with and exchange of experience on the environment and health, energy efficiency, renewable energy and climate change. In 2007 the focus of the environmental forum was on "responsible procurement", "innovative environmental policy methods" and "energy and climate policy."

The "Greening the Local Economy" work group was established in 2005 as the result of an initiative by Municipal Department of Environmental Protection - MA 22. Chaired by Vienna, experience was exchanged between various local initiatives on making business more ecologically. The Municipal Department of Environmental Protection - MA 22 is also represented in the "waste management", "environment and health" and "air quality" work groups.

**Bern convention**

The Municipal Department of Environmental Protection – MA 22 provides the common Austrian state representative to the Bern convention “Convention on the Conservation of European Wildlife and Natural Habitats”. In this function the common state representative is member of a permanent committee and contact for the secretariat located at the European Council.

**International projects**

The City of Vienna has to date implemented around 80 EU-subsidised projects relating to the environment. Projects have been implemented both in Vienna and with partners within and beyond Europe. The Municipal Department of Environmental Protection – MA 22 has carried out EU subsidised projects since 1996.

**EcoBusinessPartnership Projects**

The expertise gained from the EcoBusinessPlan Vienna has aroused a lot of international interest. So Vienna supported a project that was jointly
financed by the INTERREG III A programme from 2002 to 2007 for the West Hungarian city of Győr to set up an EcoBusinessPlan. For the INTERACT project "Ionian and Adriatic Cities and Ports Co-operation" (IONAS) the Municipal Department of Environmental Protection – MA 22 contributed its expertise in implementing environmental management systems in businesses. The Irish environmental authority EPA also showed interest in the Vienna model and in 2006 started a two-year project in Macroom/Cork County with the support of the Municipal Department of Environmental Protection.

In November 2007 the Mayor of Vienna signed the cooperation project "EcoBusiness Partnership India", a project supported jointly by UNIDO, the Indian Ministry of the Environment and the City of Vienna. The aim of the project is to set up an environmental policy in six prominent Indian cities using the "EcoBusinessPlan Vienna" programme as an example.

TAQI (Transnational Air Quality Improvement)

The aim of this INTERREG III B project which started in 2004 was to improve air quality in central Europe. The focus was on merging emission measurements on a multilingual, transnational Internet platform with emission and environmental data updated each day or hour for the complete project area and to produce a homogenous, transnational emissions database as the basis for long-term planning in the region.

Environmental authorities and institutions from eight regions (the federal states of Vienna, Lower Austria and Burgenland, the Czech Republic, Slovakia and Hungary, the German state of Bavaria and the Italian Forli region) were the project partners. Vienna was represented by the Municipal Department of Environmental Protection – MA 22.

As a result of the project, which was completed in 2007, the www.airce.info website now offers the population the opportunity to check air quality throughout the TAQI region. An international specialist jury awarded TAQI the "European Regional Championship Award 2007 for energy & environment" as the best EU-wide project in its class.
"An environmentally run nursery proves itself in the teaching by a high role model, use of environmentally friendly games, painting and work utensils as well as conscientious purchasing." – MA 10 Vienna nurseries

"Out topmost priority is on reducing heating, electricity, water and paper consumption." – MA 13 Education and after-school care

"In 2006 and 2007 we increasingly considered ecological criteria during the new construction and maintenance of public school buildings." – MA 56 City school administration
A world for children

Food in Vienna’s nurseries
Since 2003 Vienna’s nurseries have offered healthy food with a 50% share coming from organic raw material. All packaging is collected by the supplier and recycled, the food waste is used to create natural gas.

Energy contracting in nurseries
As part of the energy contract, a private company makes energy saving investments in a building and refinances these in the following year with a small profit margin from the difference between the existing energy costs and the new lower costs due to the savings. After the end of the amortisation period the equipment becomes the property of the City of Vienna. In this way the City has been able to reduce energy costs in 12 nurseries.

Kitchen hygiene
The aim of operation hygiene control is to give children food that has no health concerns and is hygienic. The control system from the hygiene control plan covers product, people, business and workplace hygiene.

Cleaning
The nurseries are generally cleaned using detergents on the so-called eco-list. This list contains products selected in cooperation with the environmental advocates and workplace doctors.

The most important projects in 2006/2007

New low energy nursery in Donaustadt with six groups and a multi-purpose room
The new nursery in Vienna 22, Schukowitzgasse 87, was designed by MA 10 in cooperation with MA 19 as a low energy building. The use of energy-optimising technologies was a condition of the tender. Architect Georg W. Reinberg was unanimously elected as the winner by the specialist jury.

The Schukowitzgasse started operated and opened in 2006. Since then this nursery has become a destination of choice for experts who want to find information on environmentally-conscious construction.

Solar systems
A solar system was installed in 3 buildings in the period under review 2006-2007.

Other important projects and actions
- Training for nursery employees on environmental matters.
- All IT devices were equipped with switchable plug bars.
- All washer driers used were replaced by energy-efficient devices.
- In 2006 it was possible to collect the electricity consumption in all locations and thus create the basis for energy monitoring.
- Encouraging double-sided printing and copying
- Collection of defective copies for use as scrap paper

Young people and education for a blooming future!

Education/training specialist department: The implementation of the MA 13 environmental programme was decided in 2007 with the Vienna Environmental Advocates. The environmental objectives and measures agreed were implemented in the central and external locations. The reduction of heating energy, electricity, water and paper consumption have the highest priority and these are being actively tracked.

Youth/training specialist department: Discussion about the direct environment including the promotion of responsible management of the
economic environment has an extremely high value for all projects promoted by MA 13 when working with children and young people outside schools. Strengthening identification with public spaces (e.g., parks) also contributes to increasing the awareness of responsibility and thus to avoiding devastation. Particularly positive effects can be seen where children and young people are involved in designing and redesigning public spaces. As part of participative projects there is also intensive cooperation with MA 42 for example. In cooperation with MA 49 wienXtra offers annual forestation activities to extend the city’s forest and close the green belt.

In 2007 3500 children, young people and families took part in the Marchfeld Canal activity: “Forest for young people in Vienna.”

Ecological criteria for public schools in Vienna

Learning in an ecologically run school

As in previous years in 2006 and 2007 ecological criteria were increasingly considered when constructing and maintaining public school buildings. In addition comprehensive planning and construction preparation work was completed in 2007 for the school renovation package 2008 to 2017 that was passed unanimously by the Council on 27th April 2007. This package aims to renovated 242 general education schools over the next 10 years with an investment volume of €570 million. Ecologically relevant measures represent a key element of this package. These include exchanging old and unsealed windows for modern wood-aluminium insulated glass windows, if possible building or renovating facades to include a heat insulation system, insulating attic areas, exchanging old radiators and heating control systems for modern and energy-efficient systems, equipping uninsulated pipes and fittings (usually in cellars) with heat insulation and where necessary, possible and appropriate, constructing a central hot water system to achieve maximum energy efficiency.

Materials (such as detergents, writing and drawing materials) are generally purchased by MA 54 - Central Purchasing. After a tender carried out in 2004 for providing staff for mealtimes (including cleaning the kitchens for full-day schools in Vienna) the cleaning materials used by the contractor must be environmentally friendly and the wash-active substances must be bio-degradable. Use must be in line with the manufacturer’s guidelines. In addition, for basic cleaning only such cleaners and coaters can be used that do not contain certain ingredients or not above the stipulated concentrations.

As a result of a council resolution on 27th January 2005 lunch at all public, full-day schools had to have a minimum 30% organic share from the 205/2006 school year. At the start of the 2007/08 school year this rose to at least 40% organic foods. In the 2007/08 school year a total of about 20,000 pupils were fed at 99 full-day school locations. As a result of the audits - in line with the strict requirements of a list of criteria- in the 2007/08 school year three companies that offer frozen and/or refrigerated food are included in the company pool from which schools can select their food suppliers.

In 2006 and 2007 the IT equipment in all public schools in Vienna was exchanged. The existing equipment - such as PCs and cathode ray tube monitors - were exchanged for more modern, energy-saving and low radiation devices such as flat screens. This exchange covered around 12,000 IT workstations.

EULE environmental training programme

EULE stands for environmental training with fun but without a pointing finger.

http://www.eule-wien.at/home/
First environmental professional action day